5-Day Workshop
To
Prepare Study Material in Economics
For PGT(Economics)
07 – 11 September 2015

Venue:
ZONAL INSTITUTE OF EDUCATION & TRAINING, BHUBANESWAR

Visit us: www.zietbbsr.org
Contact us: zietbbsr@yahoo.com, dirzietbhubaneswar@kvsedu.org, 0674-2748035
Economics is a subject with elusive and myriad definitions. Being a social science, economics has been continually adapting to the societal dynamics which has shifted from the age old agrarian society through industrial revolution to the present day knowledge and cyber economics. The school curriculum also has followed the trend.

Teaching, per se, is quite a complex art and science. More so in Economics teaching because of the abstract nature of the subject. From the students' view, there is a paradigm shift in learning methods – from the traditional ‘memorizing’ to ‘relating’. In such a scenario, students find it difficult to apply relational learning to abstract economics. We have seen it practically in the poor performance of students in the examinations.

It is said, in lighter vein, that an economist is someone who, when he finds something that works in practice, tries to make it work in theory. In other words, economists are very practical. I trust our economics PGTs are no exceptions to this fact and the proof of their ‘pudding’ will be available by way of higher pass percentage and scores.

With the best wishes.

Ms. L. Chari
Deputy Commissioner & Director
The Coordinator speaks

Dear Friends

I want to inform you that the present situation is demanding updation in the subject by all the PGTs. Economics is not a difficult subject rather a subject of the common people. The common people without knowing the fundamentals of economics are using the subject effectively in the day to day life. Therefore, I appeal to my colleagues to rise to the occasion and take the subject to the students. The students should not face difficulties in understanding the subject. To make the task easier the ZIET Bhubaneswar conducted a 5-day workshop to prepare the study material as per the training calendar of 2015-16 was taken up at ZIET Bhubaneswar. The objective of this workshop was to prepare a hand book for the teachers and study materials for the students. The objective was also to develop strategies so that ‘No child is left behind’ and all children reach the planned target. Accordingly 33 teachers from all the six Regions under the jurisdiction of ZIET Bhubaneswar were called to KVS ZIET Bhubaneswar for the workshop. The enthusiastic teachers and the Resource Persons concluded that the product of the workshop will be fruitful and it will facilitate to achieve our goal.

I request all participating teachers to go through all thematerials prepared in the workshop and share it with other Economics PGTs of your Cluster/Region.

Please send your feedback to: parsuram.shukla@gmail.com OR parsuram_111@yahoo.co.in.

Best wishes to students appearing in AISSCE 2015 and thanks to all teachers and associates.

Parsuram Shukla, PGT (Economics)
ZIET BHUBANESWAR
<table>
<thead>
<tr>
<th>SL.NO</th>
<th>TOPICS</th>
<th>Modification</th>
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</table>
| 1     | **Unit 1: Introduction**  
What is Economics?  
Meaning, scope and importance of statistics in Economics | ( Ref www.cbseacademic.nic.in) |
| 2     | **Unit 2: Collection, Organisation and Presentation of data**  
**Collection of data** - sources of data - primary and secondary; how basic data is collected, with concepts of Sampling; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey Organisation.  
**Organisation of Data**: Meaning and types of variables; Frequency Distribution.  
**Presentation of Data**: Tabular Presentation and Diagrammatic Presentation of Data: (i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and ogive) and (iii) Arithmetic line graphs (time series graph). | |
| 3     | **Unit 3: Statistical Tools and Interpretation**  
(For all the numerical problems and solutions, the appropriate economic interpretation may be attempted. This means, the students need to solve the problems and provide interpretation for the results derived.)  
**Measures of Central Tendency**- | |
mean (simple and weighted), median and mode.

**Measures of Dispersion** - absolute dispersion (range, quartile deviation, mean deviation and standard deviation); relative dispersion (co-efficient of range, co-efficient of quartile-deviation, co-efficient of mean deviation, co-efficient of variation); Lorenz Curve: Meaning, construction and its application.

**Correlation** - meaning, scatter diagram; Measures of correlation - Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.

**Introduction to Index Numbers** - meaning, types - wholesale price index, consumer price index and index of industrial production, uses of index numbers; Inflation and index numbers.

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**Unit 4: Development Experience (1947-90) and Economic Reforms since 1991:**
A brief introduction of the state of Indian economy on the eve of independence. Common goals of Five Year Plans. Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy, etc.), industry (industrial licensing, etc.) and foreign trade.

**Economic Reforms since 1991:**
Need and main features - liberalisation, globalisation and privatisation; An appraisal of LPG policies
| 5 | **Unit 5: Current challenges facing Indian Economy**  
Poverty - absolute and relative; Main programmes for poverty alleviation: A critical assessment;  
**Rural development:** Key issues - credit and marketing - role of cooperatives; agricultural diversification; alternative farming - organic farming  
**Human Capital Formation:** How people become resource; Role of human capital in economic development; Growth of Education Sector in India  
**Employment:** Formal and informal, growth and other issues: Problems and policies.  
**Inflation:** Problems and Policies  
**Infrastructure:** Meaning and Types: Case Studies: Energy and Health: Problems and Policies - A critical assessment;  
**Sustainable Economic Development:** Meaning, Effects of Economic Development on Resources and Environment, including global warming. | **Current challenges facing Indian Economy** |
|---|---|
| 6 | **Unit 6: Development Experience of India: (OTBA)**  
A comparison with neighbours  
India and Pakistan  
India and China  
Issues: growth, population, sectoral development and other developmental indicators | **Development Experience of India: (OTBA)** |
<table>
<thead>
<tr>
<th>PART</th>
<th>UNIT</th>
<th>TOPIC</th>
<th>PERIODS</th>
<th>MARKS</th>
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<td>Introduction</td>
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<td>2</td>
<td>Collection, Organisation and Presentation of Data</td>
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<td>3</td>
<td>Statistical Tools and Interpretation</td>
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<td><strong>STATISTICS FOR ECONOMICS</strong></td>
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<td>Development Experience (1947-1990)</td>
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<td>Economic Reforms since 1991</td>
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<td>Current Challenges Facing Indian Economy</td>
<td>60</td>
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<td>Development Experiences of India: A Comparison with Neighbours (OTBA)</td>
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<td><strong>90</strong></td>
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<td>1</td>
<td>Project Work</td>
<td>To be assigned and evaluated at the Vidyalaya Level</td>
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</table>
ECONOMICS: THE INTRODUCTION

Key Points

1. **Growth Oriented Definition**

In the words of Samuelson, ‘Economics is the study of how man and society choose, with or without the use of money, to employ scarce productive resources, which would have alternative uses, to produce various commodities over time and distribute them for consumption now and in the future among various people.

The definition of economics which is mainly used by many of the economists:

Economics is the study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities that satisfy their wants and to distribute them for consumption among various persons and groups in society.

2. **Consumer** – One who consumes goods and services for the satisfaction of one’s wants.
3. **Producer** – One who produces goods and services for the generation of income.
4. **Service holder** – One who work for some other person and get paid for it in the form of salary or wages.
5. **Service provider** – One who provides some kind of service to other for payment.
6. **Meaning of Statistics in plural sense** – It is a collection of numerical facts.
7. **Meaning of Statistics in Singular Sense** – It deals with the collection, presentation, analysis and interpretation of quantitative information.
8. **Definition of statistics in Plural Sense** – It means aggregate of facts affected to a marked extent of multiplicity of causes numerically expressed, enumerated or estimated according to reasonableness by facts collected in a systematic manner for predetermined relation to each other.
9. Economic activity – Activities undertaken for monetary gain or to earn income.
10. Non-economic activities- Activities which are not concerned with money.

11. Economic activities are divided into five parts:

12. Consumption: In consumption, we study wants, their origin, nature and characteristics and the laws governing them.

13. Production: It refers to all activities which are undertaken to produce goods and services for generation of income and satisfaction of wants.

14. Distribution: Economic activity which studies how income generated from the production process is distributed among the factors of production.

15. Investment: It means the increase in the capital stock of the economy.

16. Exchange; Exchange is a process which is concerned with sale and purchase of commodities.
17. Data: Economic facts in terms of numbers.
18. Importance of Statistics:
20. Statistics is widely used in many fields.
   a] Importance to the Government – Statistics is used in administration and efficient functioning of departments. It collects data to fulfill its welfare objectives.
   b] Importance of Statistics in Economics:
      1] Statistics helps in making economic laws like law of demand and concept of elasticity.
      2] It helps in understanding and solving economic problem.
      3] It helps in studying market structure.

(1 mark each)

Q. Define statistics.

Ans. Statistics deal with collection, presentation, analysis and interpretation of the quantitative information.

Q. Define investment.
Ans. It means the increase in the capital stock of the economy.

Q. What is meant by distribution?

Ans. It refers to all activities which are undertaken to produce goods and services for generation of income and satisfaction of wants

Q. Define the term scarcity as used in economics?

Ans. Scarcity means limited resources in relation to its demand.

(3 mark each)

Q. Economic problem is the cause of Scarcity. How? Meaning

1mark Examples 2 marks

Ans. Due to limited resources and unlimited wants, economic problem arises. We face various form scarcity in our daily life. Examples

Q. Give the meaning of an economic activity?

Hints: Meaning (1 mark), Explanation (2 marks)

Q. Distinguish between economic and non-economic activities.

Hints: Meaning (1 mark) Examples (2 marks)

M.C.Q’s

Q. Which data is a statistics?

a) A cow has 4 legs.

b) Birth rate in India is 18 per thousand compared to 8 per thousand in USA.
c) Ram has 200 rupees in his pocket.

Ans b)

Q. Who said “statistics may be defined as the collection, presentation, analysis and interpretation of numerical data.”?

  a) Lovitt
  b) Seligman
  c) Croxton and Cowden

Ans  c)

Q. Who wrote ‘Principle of Economics’?

  a) Adam Smith
  b) Alfred Marshall
  c) Prof. Samuelson

Ans b)

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Chapter 2: COLLECTION OF DATA

**Key points**

1. Collection of data is the first important aspect of statistical survey.

2. Data – Information which can be expressed in numbers

3. Two sources of data – Primary & Secondary Primary data collected by investigator himself.
Secondary data – data collected by someone and used by the investigator.

4. **Difference between Primary and Secondary Data**
a] Primary data is original data collected by the investigator while secondary data is already existing and not original.
b] Primary data is always collected for a specific purpose while secondary data has already been collected for some other purpose.
c] Primary is costlier or is more expensive whereas secondary data is less expensive.

5. **Methods / Sources of Collection of Primary Data:**
a] Direct Personal Interview – Data is personally collected by the interviewer.
b] Indirect Oral Investigation – Data is collected from third parties who have information about subject of enquiry.
c] Information from correspondents – Data is collected from agents appointed in the area of investigation.
d] Mailed questionnaire – Data is collected through questionnaire [list of questions] mailed to the informant.
e] Questionnaire filled by enumerators – Data is collected by trained enumerators who fill questionnaires.
f] Telephonic interviews – Data is collected through an interview over the telephone with the interviewer.

6. Pilot Survey – Try-out of the questionnaire on a small group to find its shortcomings.
   Questionnaire – A list of questions with space for answers.

7. Qualities of a good questionnaire:
a] A covering letter with objectives and scope of survey.
b] Minimum number of questions.
c] Avoid personal questions.
d] Questions should be clear and simple.
e] Questions should be logically arranged.

8. Difference between census method and sampling method.

**Census Method**
1) Every unit of population studied
2) Reliable and accurate results
3) Expensive method
4) Suitable when population is of homogenous nature
**Sampling Method**
1) Few units of population are studied
2) Less Reliable and accurate results
3) Less expensive method
4) Suitable when population is of heterogeneous nature

9. **Personal Interview Method:**
   **Advantages**
   1) Highest response rate
   2) Allows all types of questions
   3) Allows clearing doubts regarding questions
   
   **Disadvantages**
   1) Most expensive
   2) Informants can be influenced
   3) Takes more time

**Mailed Questionnaire Method:**
   **Advantages**
   1) Least expensive
   2) Only method to reach remote areas
   3) Informants can be influenced
   
   **Disadvantages**
   1) Long response time
   2) Cannot be used by illiterates.
   3) Doubts cannot be cleared regarding questions

**Telephonic Interview Method:**
   **Advantages**
   1) Relatively low cost
   2) Relatively high response rate
   3) Less influence on informants
   
   **Disadvantages**
   1) Limited use
   2) Reactions cannot be watched
   3) Respondents can be influenced

• Census Method – Data collected from each and every unit of population.
• Sample Method – Data is collected from few units of the population and result is applied to the whole group.
• Universe or population in statistics – Total items under study.
• Sample is a section of population from which information is to be obtained.
Sources of Secondary Data:
1. Published Source – Government publications, Semi-government publications etc.
2. Unpublished Source – Census of India [They are collected by the organizations for their own record]

Sampling Methods: 1] Random sampling 2] Non-random sampling

1. Random Sampling – It is a sampling method in which all the items have equal chance of being selected and the individuals who are selected are just like the ones who are not selected.

2. Non-random sampling – It is a sampling method in which all the items do not have an equal chance of being selected and judgment of the investigator plays an important role.

Types of Statistical errors:
1] Sampling errors 2] Non-sampling errors

Sampling Error: It is the difference between sample value and actual value of a characteristic of a population.

Non-sampling errors: Errors that accurate the stage of collecting data.

Types of non-sampling errors:
a] Errors of measurement due to incorrect response.
b] Errors of non-response of some units of the sample selected.
c] Sampling bias occurs when sample does not include some members of the target population.

Census of India – It provides complete and continuous demographic record of population.

National Sample Survey Organization – It conducts national surveys on socio-economic issues.

Sarvekshana – Quarterly journal published by NSSO.

1 mark question:
1. What are the main sources of data?
   Ans Primary&Secondary
2. Name 2 sources of errors in data collection.
   Ans.: 1] Sampling errors 2] Non-sampling errors
3. What is pilot survey?
   Ans-Pilot Survey – Try-out of the questionnaire on a small sample
4. Define sampling error.
Sampling Error: It is the difference between sample value and actual value of a characteristic of a population.

5. Name 2 examples of secondary data.
   1. Published Source – Government publications, Semi-government publications etc.
   2. Unpublished Source – Census of India [They are collected by the organizations for their own record].

3 mark questions:
1. Which of the following methods give better results and why ?
   a] sample  b] census
   [Hint: depends on survey objective; census useful when population size is small]
2. Which of the following errors is more serious and why?
   a] Sampling error b] Non sampling error
   [Hint: Non sampling errors are more serious as sampling errors can be minimized by taking a larger sample]
3. Distinguish between primary data and secondary data.

4 mark questions:
1. Which of the following methods gives better results and why? 
   a] Census  b] Sample
2. Write four differences between census and sample methods.
3. What are the advantages of mailing questionnaire?
4. Distinguish between random and non random sampling.

6 mark questions:
1. Write 3 advantages and disadvantages each of indirect oral investigation.

2. Distinguish between:
   a] Primary data and Secondary data
   b] Census method and Sample method

3. Distinguish between primary data and secondary data. Which data is more reliable and why?

4. What do you mean by questionnaire? State five principles which should be followed while drafting a good questionnaire.

5. Discuss the method of collecting data through questionnaires filled by enumerators. Also give its two merits and two demerits.
KEY POINTS

1. Classification of Data: The process of grouping data according to their characteristics is known as classification of data.

2. Objectives of Classification:
   a] To simplify complex data
   b] To facilitate understanding
   c] To facilitate comparison
   d] To make analysis and interpretation easy.
   e] To arrange and put the data according to their common characteristics.

3. Classification of Data:
   a) Chronological classification:-
      Data are classified either in ascending or in descending order with reference to time such as years, quarters, months, weeks etc.
   b) Spatial classification:-
      Data are classified with reference to geographical locations such as countries, states, cities, districts etc.
   c) Qualitative classification:-
      Data are classified on the basis of attributes like sex, literacy, religion, education etc.
   d) Quantitative classification:-
      Data are classified on the basis of some characteristics which can be measured like height, weight, age, income, marks of the students.

   Statistical Series:
   Individual Series and Frequency Series
   Raw data, Individual series and Discrete Series, Continuous series
   Inclusive series, Exclusive series
   A. On the basis of individual units:
      The data can be individually presented in two forms:
      i] Raw data: Data collected in original form.
      ii] Individual Series: The arrangement of raw data individually. It can be expressed in two ways.
         a] Alphabetical arrangement : Alphabetical order
         b] Array: Ascending or descending order.
   B. On the basis of Frequency Distribution:
      Frequency distribution refers to a table in which observed values of a variable are classified according to their numerical
      i. Discrete Series: A variable is called discrete if they take only some particular values.
ii. Continuous Series: A variable is called continuous if it can take any value in a given range.

In constructing continuous series we come across terms like:

a] Class: Each given internal is called a class e.g., 0-5, 5-10.
b] Class limit: There are two limits upper limit and lower limit.
c] Class interval: Difference between upper limit and lower limit.
d] Range: Difference between upper limit and lower limit.
e] Mid-point or Mid Value: \( \text{Upper limit + Lower limit} \div 2 \)
f] Frequency: Number of items [observations] falling within a particular class.

i] Exclusive Series: Excluding the upper limit of these classes, all the items of the class are included in the class itself. e.g.,:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>2</td>
</tr>
<tr>
<td>10-20</td>
<td>5</td>
</tr>
<tr>
<td>20-30</td>
<td>2</td>
</tr>
<tr>
<td>30-40</td>
<td>1</td>
</tr>
</tbody>
</table>

ii] Inclusive Series: Upper class limits of classes are included in the respective classes.

e.g.:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>2</td>
</tr>
<tr>
<td>10-19</td>
<td>5</td>
</tr>
<tr>
<td>20-29</td>
<td>2</td>
</tr>
</tbody>
</table>

Open End Classes: The lower limit of the first class and upper limit of the last class are not given.

<table>
<thead>
<tr>
<th>Marks</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 20, 20-30, 30-40</td>
<td>6</td>
</tr>
<tr>
<td>40-50, 50 and above</td>
<td>5</td>
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</table>

(1 mark questions):

1. What is meant by classification of data?
   Ans. The process of grouping data according to their characteristics is known as classification of data.

2. What is meant by discrete series?
   Ans. A variable is called discrete if the variable can take only some particular values.

3. What is meant by inclusive series?
   Ans. Upper class limits of classes are included in the respective classes.

(3 mark questions):

1. Distinguish between Exclusive series and inclusive series.

2. Distinguish between discrete series and continuous series.

(4 mark questions):

1. Construct a frequency distribution table for the following students in the form of a 4 continuous series according method.
PRESENTATION OF DATA

Tabular Presentation, Diagrammatic Presentation: (i) Bar Diagrams and (ii) Pie Diagrams, Graphical Presentation: (histogram, polygon and ogive), Arithmetic line graphs (time series graph)

After data have been collected and organized, they need to be put in a compact and presentable form. Because, the presented data could be made usable readily and are easily comprehended. There are four ways of presenting data such as:

1. Textual Presentation
2. Tabular Presentation
3. Diagrammatic Presentation
4. Graphic Presentation

KEY POINTS:

1. Textual Presentation: In textual presentation, data are described within text. When the quantity of data is not too large this form of presentation is more suitable.

2. Tabular Presentation: refers to the process of presenting data orderly in the form of rows and columns. The tabulated data can be easily understood and interpreted. Different parts of the table are:
   - Table
number,(ii) title, (iii) captions or column heading, (iv) stubs or row heading, (v) body of the table, (vi) unit of measurement, (vii) source note and (viii) foot note.

3. Format of a table:

<table>
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<tr>
<th>Stub entries</th>
<th>Caption</th>
<th>Sub caption</th>
<th>Sub caption</th>
<th>Sub caption</th>
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<td></td>
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</tr>
</tbody>
</table>

Foot Note:

4. Classification: refers to the process of arranging the data into groups or classes according to resemblances and similarities. There are four types of classification used in tabulation. These are:

(i) Qualitative: when classification is done according qualitative characteristics such as social status, physical status
(ii) Quantitative: the data are classified on the basis of characteristics which are quantitative in nature such as age, height, production, income etc.

(iii) Temporal: data are classified according to time such as hours, days, weeks, months, and years.

(iv) Spatial or Geographical Classification: when the data is classified according to geographical location or region such as city, districts, states or countries etc.

5. Bar Diagram: comprises of a group of equispaced and equiwidth rectangular bars for each class or category of data. Height or length of the bars reads the magnitude of data. The lower end of the bar touches the base line such that the height of a bar starts from the zero unit.

Types of Bar Diagrams: (i) Simple Bar Diagram, (ii) Multiple Bar Diagram and (iii) Component Bar Diagram.

6. Pie Diagram: is a component diagram, i.e., a circle whose area is proportionally divided among the components it represents. It is called a pie chart. The circle is divided into as many parts as there are components by drawing straight lines from the centre to the circumference. Pie charts are usually not drawn with absolute values of a category. The values of each category are first expressed as percentage of the total value of all the categories.

7. Frequency diagram: Data in the form of grouped frequency distributions are represented by frequency diagrams like histogram, frequency polygon, frequency curve and ogive.

(i) Histogram: A histogram is a two dimensional diagram. It is a set of rectangles with bases as the intervals between class boundaries (along X-axis) and with areas proportional to the class frequency. If the class intervals are of equal width the area of the rectangles are proportional to their respective frequencies. A histogram is never drawn for a discrete variable/data. The difference between diagram and spacing and the widths of bars are all arbitrary. It is width or area of the bars of the bar that really m:
space is left in between two rectangles but in bar diagram space must be left between consecutive bars. The width of a histogram is as important as its height.

(ii) **Frequency polygon**: A frequency polygon is a plane bounded by straight lines, usually four or more lines. It can be fitted to a histogram for studying the shape of the curve. The method of drawing a frequency polygon is to join the midpoints of the topside of the consecutive rectangles of the histogram. Broken lines or dots may join the two ends with the base line. The total area under the curve represents the total frequency or sample size.

(iii) **Frequency curve**: is obtained by drawing a smooth freehand curve passing through the points of the frequency polygon as closely as possible.

(iv) **Ogive or Cumulative Frequency Curve**: As there are less than CF and more than CF, accordingly there are two ogives for any grouped frequency distribution data. For less than ogive the CFs are plotted against the respective upper limits of the class intervals whereas for more than ogives the CFs are plotted against the respective lower limits of the class intervals. The intersection point of two ogives gives the **median**.

8. **Arithmetic line or time series graph**: In this graph, time is plotted along X-axis and the value of the variable (time series data) along Y-axis. A line graph by joining these plotted points is called arithmetic line graph. It helps in understanding the trend in a long term time series data.

9. **False Base Line**: Acut made between zero and lowest value to indicate the value of the origin on vertical and horizontal axis is known as false base line.

**MODEL QUESTIONS WITH ANSWER:**

1. Data represented through a histogram can help in finding graphically the:

(a) Median  
(b) Mode  
(c) Mean  
(d) All of these

2. Ogives can be helpful in locating graphically:
(a) Median  (b) Mode  (c) Mean  (d) None of these

3. Data represented through arithmetic line graph helps in understanding:
   (a) long term trend  (b) cyclicity in data,  (c) seasonality in data,  (d) All of the above

4. The classification of data according to time is called:
   (a) qualitative  (b) quantitative  (c) spatial  (d) temporal

5. The process of arranging data in rows and columns is called:
   (a) classification  (b) tabulation  (c) histogram  (d) ogive

6. Show the following data of expenditure of an average working class family by a pie diagram:

<table>
<thead>
<tr>
<th>Item of expenditure</th>
<th>Percent of total expenditure</th>
<th>Angle of Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>65</td>
<td>234</td>
</tr>
<tr>
<td>Clothing</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Housing</td>
<td>12</td>
<td>43.2</td>
</tr>
<tr>
<td>Fuel and Lighting</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Lighting</td>
<td>8</td>
<td>28.8</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
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</tbody>
</table>

Ans:
7. Represent the following data by a component bar diagram:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports (in croreRs.)</td>
<td>10</td>
<td>110</td>
<td>115</td>
<td>125</td>
<td>122</td>
</tr>
<tr>
<td>Imports (in croreRs.)</td>
<td>85</td>
<td>89</td>
<td>105</td>
<td>110</td>
<td>115</td>
</tr>
</tbody>
</table>
8. The following table shows the estimated sectoral real growth rate (percentage change over the previous year) in GDP at FC. Represent the data as multiple time series graph.

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-95</td>
<td>5.0</td>
<td>9.2</td>
<td>7.0</td>
</tr>
<tr>
<td>1995-96</td>
<td>-0.9</td>
<td>11.8</td>
<td>10.3</td>
</tr>
<tr>
<td>1996-97</td>
<td>9.6</td>
<td>6.0</td>
<td>7.1</td>
</tr>
<tr>
<td>1997-98</td>
<td>-1.9</td>
<td>5.9</td>
<td>9.0</td>
</tr>
<tr>
<td>1998-99</td>
<td>7.2</td>
<td>4.0</td>
<td>8.3</td>
</tr>
<tr>
<td>1999-00</td>
<td>0.8</td>
<td>6.9</td>
<td>8.2</td>
</tr>
</tbody>
</table>

**MODEL QUESTIONS:**
1. What is a frequency curve?

2. What is false base line?

3. What is classification? Explain briefly different types of classification with help of examples.

4. What do you mean by histogram? Draw a histogram of the data given below and determine the value of mode.

<table>
<thead>
<tr>
<th>Wages</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>60-70</th>
<th>70-80</th>
<th>80-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Employees</td>
<td>8</td>
<td>10</td>
<td>16</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

5. What is ogive? Draw a less than and a more than ogive of the data given below and determine the value of median.

<table>
<thead>
<tr>
<th>Marks</th>
<th>0-20</th>
<th>20-40</th>
<th>40-60</th>
<th>60-80</th>
<th>80-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of students</td>
<td>6</td>
<td>5</td>
<td>33</td>
<td>14</td>
<td>6</td>
</tr>
</tbody>
</table>

6. Represent the following data by multiple bar diagram:

<table>
<thead>
<tr>
<th>Year</th>
<th>Arts</th>
<th>Commerce</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>540</td>
<td>325</td>
<td>250</td>
</tr>
<tr>
<td>2006</td>
<td>650</td>
<td>410</td>
<td>275</td>
</tr>
<tr>
<td>2007</td>
<td>730</td>
<td>520</td>
<td>350</td>
</tr>
</tbody>
</table>

7. Calculate the value of mode using ‘histogram’ of the data given below:

<table>
<thead>
<tr>
<th>Marks</th>
<th>0-20</th>
<th>20-40</th>
<th>40-60</th>
<th>60-80</th>
<th>80-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>12</td>
<td>28</td>
<td>60</td>
<td>48</td>
<td>30</td>
</tr>
</tbody>
</table>

8. Distinguish between a histogram and a bar diagram.

9. Draw histogram and ogives and find out the value of mode from histogram and median from ogives:
10. Briefly discuss the rules for constructing the time series graph.

11. Plot the following data of annual profit of a firm on a Time Series Graph.

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profits (in Rs crore)</td>
<td>7</td>
<td>10</td>
<td>25</td>
<td>15</td>
<td>18</td>
<td>30</td>
</tr>
</tbody>
</table>

Unit -3 STATISTICAL TOOLS AND INTERPRETATION

MEASURES OF CENTRAL TENDENCY

(Mean – Simple and Weighted, Median and Mode)

KEY POINTS:

1. Averages or Measures of Central Tendency: are the values lie between the smallest and the largest observations of the distribution and give us an idea about the concentration of the values in the central part of the distribution.

2. Several Averages or Measures of Central Tendency are: Mean, Median and Mode.

3. Features of an Ideal Measure of Central Tendency:
   (i) It should be rigidly defined.
   (ii) It should be easy to understand and calculate.
   (iii) It should be based on all the observations.
(iv) It should be suitable for further mathematical treatment.

(v) It should be least affected by fluctuations of sampling.

(vi) It should not be affected by extreme observations.

4. **Arithmetic Mean or Mean**: of a given set of observations is their sum divided by the number of observations.

5. **Weighted Arithmetic Mean or Mean**: In several cases, all the items in the distribution are not of equal importance. In such cases, proper weightage is to be given to various items – the weights attached to each item being proportional to the importance of the item in the distribution. And the Weighted Arithmetic Mean is the appropriate average to be applicable in these cases. Weighted arithmetic mean refers to the average when different items of a series are given different weights according to their relative importance, i.e., \( \bar{x} = \frac{\sum wx}{n} \)

6. **Methods to calculate Arithmetic Mean or Mean**:

<table>
<thead>
<tr>
<th>Method</th>
<th>Individual Series</th>
<th>Discrete Series</th>
<th>Continuous Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>( \bar{x} = \frac{\sum X}{n} )</td>
<td>( \bar{x} = \frac{\sum fx}{N} )</td>
<td>( \bar{x} = \frac{\sum fM}{N} )</td>
</tr>
<tr>
<td>Assumed Mean</td>
<td>( \bar{x} = A + \frac{\sum d}{n} )</td>
<td>( \bar{x} = A + \frac{\sum fd}{N} )</td>
<td>( \bar{x} = A + \frac{\sum fd}{N} X i )</td>
</tr>
<tr>
<td>Step Deviation</td>
<td>( \bar{x} = A + \frac{\sum d}{n} X C )</td>
<td>( \bar{x} = A + \frac{\sum fd}{N} X C )</td>
<td>( \bar{x} = A + \frac{\sum fd}{N} X i )</td>
</tr>
</tbody>
</table>

Where \( A \) is the assumed mean, \( f \) is the frequency, \( M \) is the mid value of a class and \( d \) is the deviation taken from the assumed mean.

7. **Mathematical Properties of Arithmetic Mean**:

(i) The algebraic sum of the deviations of the given set of observations taken from their arithmetic mean is zero, i.e., \( \sum (X - \bar{x}) = 0 \).
(ii) If $n_1$ and $n_2$ are the sizes, and $\bar{x}_1$ and $\bar{x}_2$ are the respective means the two series, then the combined mean is 

$$\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2}.$$ 

(iii) The of sum of the squares of deviations of the given set of observations is minimum when taken from the arithmetic mean.

(iv) If all the observations in a distribution are added, subtracted, multiplied and divided by a constant ‘$\alpha$’, then the mean is added, subtracted, multiplied and divided by the same constant.

8. **Merits of Arithmetic Mean or Mean:**

(i) It is rigidly defined.

(ii) It is easy to calculate and understand.

(iii) It is based on all the observations.

(iv) It is suitable for further mathematical treatment.

(v) Of all the averages, it is least affected by fluctuations of sampling.

9. **Demerits of Arithmetic Mean or Mean:**

(i) It is very much affected by extreme observations.

(ii) It cannot be used in the open end classes.

(iii) It cannot be located graphically nor can it be determined by inspection.

(iv) It cannot be used in case of data of qualitative nature such as intelligence and honesty.

9. **Median** ($M_d$): is defined as the value of the variable which divides the group in two equal parts, one part comprising all the values greater and the other, all values less than median. Median is a positional average. Median is the middle element when the data set is arranged in order of the magnitude.

10. **Calculation of Median:**

(i) In case of Individual Series the Steps are:
(a) First arrange the data either ascending or descending order of magnitude.

(b) Position of median = \( \frac{(n+1)}{2} \) th item

(c) In case of odd number of items: Median = Middle item of the distribution.

(d) In case of even number of items: Median = Average of two middle items.

(ii) In case of Discrete Series the Steps are:

(a) Calculate the cumulative frequency in the distribution.

(b) Find \( \frac{(N+1)}{2} \)

(c) Find the item of the distribution which is just greater than or equal to \( \frac{(N+1)}{2} \). This is the median value of the given distribution.

(iii) In case of Continuous or Open End distribution the Steps are:

(a) Calculate the cumulative frequency in the distribution.

(b) Find \( \frac{N}{2} \)

(c) Find the cumulative frequency of the distribution which is just greater than or equal to \( \frac{N}{2} \). Then find out the median class.

(d) Find out the C.F. preceding the median class.

(e) Find out the value of median using the formula as:

\[
Md = L1 + \frac{N-C}{f} \times i
\]

Where \( C \) is the C.F. preceding the median class, \( f \) is the frequency of the median class, \( L1 \) is the lower limit of the median interval of the median class.
11. Merits of the median:

(i) It is rigidly defined.

(ii) Since median is a positional average, it is not affected at all by extreme observations.

(iii) It can be calculated while dealing with a distribution with open end classes.

(iv) It can be computed by simple inspection and can be located graphically.

(v) It is the only average to be used while dealing with qualitative phenomenon such as average intelligence, average honesty etc.

12. Demerits of Median:

(i) It is not based on each and every item of the distribution.

(ii) It is not suitable for further mathematical treatment.

(iii) It is affected by fluctuations of sampling.

13. Quartiles: are the measures which divide the series into four equal parts, each portion contains equal number of observations. There are three quartiles such as: $Q_1$, $Q_2$ and $Q_3$. The first quartile $Q_1$ or lower quartile has 25% of the items are greater than it. The second quartile $Q_2$ has 50% of the items below it and 50% of items above it. The third quartile $Q_3$ or upper quartile has 75% of the items are greater than it.

14. Mode ($M_o$) is the most frequently observed data value. It is the value which has greatest frequency density in its immediate neighbourhood.

15. Calculation of Mode:

(i) In case of Individual Series: Mode cannot be determined because each and every item occurs only once.

(ii) In case of Discrete Series the Steps are determined by inspection. It is the item having maxir
(iii) In case of grouped frequency distribution (continuous or open end):

(a) Determine the modal class having highest

(b) Determine the value of mode by using the formula:

\[ M_o = l_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i \]

Where \( f_1 \) is the frequency of the modal class, \( f_0 \) is the frequency preceding the modal class, \( f_2 \) is the frequency succeeding the modal class, \( l_1 \) is the lower limit of the modal class and \( i \) is the class interval of the modal class.

**Note:**

(i) While calculating mode in case of ungrouped and grouped frequency distribution, if any one of the following conditions present in a distribution the mode can be calculated by **the grouping method**.

(a) if there is any irregularities in the distribution;

(b) if the maximum frequency is repeated;

(c) if the maximum frequency occurs either at the beginning or end of the series.

(ii) If the usual method and grouping method fails to calculate the mode, then mode can be calculated by the empirical relation based on Mean, Median and Mode,

\[ \text{i.e., Mode} = 3M_d - 2M \]

16. **Graphical calculation of median and mode:** The median can be calculated by graph by drawing less than and more than Ogive, and the perpendicular drawn from the intersection point of the less than and more than Ogive to the X-axis.

The mode can be located by drawing histograms, i.e., the rectangle with the greatest height will be the modal class. Draw a line joining the top point of the rectangle of the modal class with the top right of the rectangle of the class preceding the modal class. Similarly, draw a line joining the top left point of the rectangle of the modal class with the rectangle of the class succeeding the modal class.
17. Relative position of Mean, Median and Mode are: $M > M_d > M_o$ or $M < M_d < M_o$. The median is always between the arithmetic mean and the mode.

MODEL QUESTIONS WITH ANSWERS:

1. Which average would be suitable in case of open-end frequency distribution?

   (a) Mean  (b) Median  (c) Mode  (d) Both (b) and (c)

2. The sum of deviations of a set of $n$ observations taken from their arithmetic mean is always:

   (a) greater than 1,  (b) less than 1,  (c) equals to 1  (d) equals to zero.

3. If mean is 25 and median is 30, find out the value of mode:

   (a) 10  (b) 15  (c) 20  (d) 30

4. Which average is affected most by the presence of extreme items?

   (a) Median  (b) Mode  (c) Mean  (d) None of these

5. Which average is calculated by histogram?

   (a) Median  (b) Mode  (c) Mean  (d) All of these

6. Which Quartile is equal to the Median?

   (a) Median  (b) Mode  (c) Mean  (d) All of these

7. Which quartile has 75% items greater than it?

   (a) First Quartile  (b) Second Quartile  (d) Median
8. Which average is most suitable while dealing with distribution of qualitative phenomenon such as intelligence, honesty etc.?

(a) Median (b) Mode (c) Mean (d) All of these

9. Define mode.

Ans. **Mode** is the mode frequently occurred item in the distribution having greatest frequency density in its immediate neighbourhood.

10. What is the relative position of mean, median and mode?

Ans: Relative position of Mean, Median and Mode are: $M > M_d > M_o$ or $M < M_d < M_o$, i.e., median is always between the arithmetic mean and the mode.

11. In which case, weighted mean will be equal to simple mean?

Ans. When equal weight are used for all the items in the series.

12. What happens to the value of arithmetic mean when 10 is added or subtracted to all the items of the series?

Ans. Mean is added or subtracted by 10.

13. Calculate mean, median and mode and quartiles from the data given below:

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
<th>Class Mid Value (M)</th>
<th>d = $\frac{M - A}{l}$</th>
<th>fd</th>
<th>cf</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-53</td>
<td>3</td>
<td>51.5</td>
<td>-4</td>
<td>-12</td>
<td>3</td>
</tr>
<tr>
<td>53-56</td>
<td>8</td>
<td>54.5</td>
<td>-3</td>
<td>-9</td>
<td>14</td>
</tr>
<tr>
<td>56-59</td>
<td>14</td>
<td>57.5</td>
<td>-2</td>
<td>-4</td>
<td>28</td>
</tr>
<tr>
<td>59-62</td>
<td>30</td>
<td>60.5</td>
<td>-1</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>62-65</td>
<td>36</td>
<td>63.5</td>
<td>0</td>
<td>36</td>
<td>55</td>
</tr>
<tr>
<td>Class Interval</td>
<td>Frequency (f)</td>
<td>Mean (x)</td>
<td>Frequency (f)</td>
<td>Mean (x)</td>
<td>Total</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
<td>----------</td>
<td>---------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>65-68</td>
<td>28</td>
<td>66.5</td>
<td>1</td>
<td>28</td>
<td>119</td>
</tr>
<tr>
<td>68-71</td>
<td>16</td>
<td>69.5</td>
<td>2</td>
<td>32</td>
<td>135</td>
</tr>
<tr>
<td>71-74</td>
<td>10</td>
<td>72.5</td>
<td>3</td>
<td>30</td>
<td>145</td>
</tr>
<tr>
<td>74-77</td>
<td>5</td>
<td>75.5</td>
<td>4</td>
<td>20</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>---</strong></td>
<td><strong>---</strong></td>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

* Where \( A = 63.5 \) is the assumed mean and \( d \) is the deviation.

(i) \( \bar{X} = A + \frac{\sum fd}{N} \times i \)

\[
= 63.5 + \frac{16}{150} \times 3
\]

\[= 63.82\]

(ii) \(Md = L_1 + \frac{N - C}{f \times i} \times i\)

\[
= 62 + \frac{75 - 55}{36} \times 3
\]

\[= 63.67\]

(iii) \(M_o = L_1 + \frac{f_1 - f_0}{2f_1 - f_0 - f_1} \times i\)

\[
= 62 + \frac{36 - 30}{72 - 30 - 28} \times 3
\]

\[= 63.29\]

(iv) \(Q_1 = L_1 + \frac{N - C}{4f} \times i\)

\[
= 59 + \frac{37.5 - 25}{30} \times 3
\]

\[= 60.25\]

(v) \(Q_3 = L_1 + \frac{3N - C}{4f} \times i\)

\[
= 65 + \frac{112.5 - 91}{28} \times 3
\]

\[= 67.30\]
MODEL QUESTIONS:

1. What is an average? What are its types?

2. Define (a) Mean (b) Median (d) Mode and (e) Weighted Arithmetic Mean.

3. What are the mathematical properties of Arithmetic Mean?

4. Write down the merits and demerits of arithmetic mean.

5. What are the features of an ideal average?

6. Show that the sum of deviations of a set of observations taken from their mean is zero.

7. Discuss the conditions in which weighted arithmetic mean is equal to or more than simple arithmetic mean with the help of examples.

8. If the arithmetic mean of the data given below is 28, find (a) the missing frequency, and (b) the median of the series:

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>12</td>
<td>18</td>
<td>27</td>
<td>--</td>
<td>17</td>
<td>6</td>
</tr>
</tbody>
</table>

9. Calculate Mode and Median of the data given below:

<table>
<thead>
<tr>
<th>Size of land holdings</th>
<th>Less than 100</th>
<th>100-200</th>
<th>200-300</th>
<th>300-400</th>
<th>400 and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of workers</td>
<td>40</td>
<td>89</td>
<td>148</td>
<td>64</td>
<td>39</td>
</tr>
</tbody>
</table>

10. From the following calculate mean and median from the following:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No of workers</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Calculate quartiles and medial from the following distribution:

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10</th>
<th>10-20</th>
<th>20-40</th>
</tr>
</thead>
</table>
KEYPoints.

* Dispersion is a measure of the variation of the items from central Value.

* The measures of dispersion are important to compare uniformity, consistency and reliability amongst variables.

* Absolute measures of dispersion are expressed in terms of original Unit of series.

* Relative measures are expressed in ratios or percentage, also known as coefficients of dispersion.

MEASURES OF DISPERSION

(i) Range    (ii) Inter quartile range    (iii) Quartile deviation or Semi Inter- quartile range.

(iv) Mean deviation (v) Standard Deviation    (vi) Lorenz curve

* Range: Range is defined as the difference between two extreme Observations i.e. the largest and the smallest value.

Symbolically

\[ R = L - S \] Where \( R \) = Range

\[ L = \text{Largest Value} \]
$S = \text{Smallest value}$

* Coefficient of range = $L - S/ (L + S)$

* Inter Quartile Range:

Inter quartile range is the difference between upper quartile and
Lower quartile.

$\text{Inter-quartile range} = Q_3 - Q_1$

Where $Q_3 = \text{Third quartile or upper quartile}$.  
$Q_1 = \text{First quartile or lower quartile}$

* Quartile Deviation:

Quartile deviation is known as half of difference of third quartile
(Q3) and first quartile (Q1). It is also known as semi interquartilerange.

$Q.D = (Q_3 - Q_1)/2$

Where $Q.D = \text{Quartile deviation}$

$Q_3 = \text{Third quartile or upper quartile}$.  
$Q_1 = \text{First quartile of lower quartile}$.  

Coefficient of quartile deviation

$\text{Coefficient of } Q.D = (Q_3 - Q_1)/(Q_3 + Q_1)$

Mean Deviation

Mean deviation / average deviation is the arithmetic me:

Deviations of various items from their average (mean, $m$)
mode) generally from the median.

Calculation of mean deviation

**Individual Series Discrete Series Continuous Series**

\[
\text{M.D} = \frac{\sum |D|}{N} \\
\text{M.D} = \frac{\sum f |D|}{N} \\
\text{M.D} = \frac{\sum f |D|}{N}
\]

Where,

MD = Mean deviation

| D | = Deviations from mean or median ignoring - Signs

N = Number of item (Individual Series)

N = Total number of Frequencies (Discrete and continuous series)

F = Number of frequencies.

Coefficient of mean deviation

\[
\text{M.D}_{\text{mean}} \text{ or } \text{M.D}_{\text{med.}} \text{ or } \text{M.D}_{\text{mode}}
\]

Standard Deviation:

Standard deviation is the best and widely used measure of

Dispersion: Standard deviation is the square root of the arithmetic

Mean of the squares of deviation of its items from their arithmetic mean.

Calculation of standard deviation in individual series.

Actual mean method.

Where = Standard Deviation = \(\frac{\sum x^2}{N}\)

\(x^2 = \) Square of deviation taken from mean

N = Number of items
Shortcut method or assumed mean method:

\[ S.D = \sqrt{[\sum d_x^2 - \sum \left(\frac{d_x}{N}\right)^2]} \]

Where \( d_x^2 \) = Square of deviation taken from assumed mean.

Calculation of standard deviation in discrete series:

Actual mean method or direct method

Where = \( S.D = \sqrt{\sum fdx^2} \), \( dx = X - \text{Mean} \)

\( \sum fdx^2 \) = Sum total of the squared deviations multiplied by frequency

\( N \) = Number of observation.

Short cut method or assumed mean method

Where \( S.D = \sqrt{[\sum fdx^2 - \sum (fdx/N)^2]} \)

\( \sum fd^2 \) = Sum total of the squared deviations

Multiplied by frequency

\( \sum fd = \text{Sum total of deviations multiplied by frequency.} \)

\( N \) = Number of pair of observations.

Step deviation method

= Standard Deviation

\( fd1^2 \) = Sum total of the squared step deviations multiplied by frequency.

\( fd^1 \) = Sum total of step deviations multiplied by frequency.

\( C \) = Common factor
N = Number of pair of observation

Calculation of standard deviation in continuous series.

Actual mean method

\[ S.D = \sqrt{\sum fdx^2} \quad d_x = X - \text{mean} \]

\[ \sum fdx^2 = \text{Sum total of the squared deviation multiplied by frequency.} \]

N = Number of pair of observations.

Shortcut method or assumed mean method

\[ S.D = \sqrt{[\sum fdx^2 - \sum (fdx/N)^2]} \quad dx = X - A, A: \text{Assumed mean} \]

Step deviation method.

\[ S.D = \sqrt{[\sum fdx^2 - \sum (fdx/N)^2]} Xc \quad dx = (X - A)/c, A: \text{Assumed mean} \]

C: common factor

Coefficient of variation (C.V)

When two or more groups of similar data are to be compared with respect to stability (or uniformly or consistency or homogeneity), Coefficient of variation is the most appropriate measures.

\[ \text{C V} = \left( \frac{\text{S.D}}{\text{mean}} \right) \times 100 \]

Where C. V = Coefficient of variation

S.D= Standard deviation

Mean = Arithmetic mean

LORENZ CURVE:
* The Lorenz curve devised by Dr. Max O. Lorenz, is a graphic method of studying dispersion.

* The Lorenz curve always lies below the line of equal distribution, unless the distribution is uniform.

* The Area between the line of equal distribution and the plotted curve gives the extent of inequality in the items. The larger the area, more is the inequality.

**ONE MARK QUESTIONS**

1. What is inter quartile range?.

2. Give the formula of calculating coefficient of variation.

3. What is Lorenz Curve?

4. Calculate range
   
   22, 35, 32, 45, 42, 48, 39

5. Which graphical method is used to measure dispersion?

6. Give the meaning of dispersion.

7. How is coefficient of mean deviation computed?

8. Which measure of dispersion covers middle 50% of the items?

9. Write one major demerit of mean deviation.

10. What do you mean by relative measure of dispersion?

11. What is a line of equal distribution.

12. Write two demerits of range.

13. Which is most widely used and best measurement of
14. Give the formula of calculating quartile deviation.

15. Write two uses of range.

SHORT ANSWER TYPE QUESTIONS (3/4 MARKS)

1. Mention important measures of dispersion.

2. Mention any two merits and two demerits of mean deviation.

3. Distinguish between mean deviation and standard deviation.

4. What do you understand by dispersion?

   Describe the various methods of computing dispersion.

5. Discuss the relative merits of range, mean deviation and standard deviation as measures of dispersion.

6. Find the range and coefficient of range of the following:

<table>
<thead>
<tr>
<th>Marks :</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Students</td>
<td>8</td>
<td>12</td>
<td>7</td>
<td>30</td>
<td>12</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

   (Range = 60 manes : Coefficient of range = 0.75)

7. Find out the value of quartile deviation and its coefficient from the following data.

<table>
<thead>
<tr>
<th>Roll No. :</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>7</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks:</td>
<td>20</td>
<td>28</td>
<td>40</td>
<td>12</td>
<td>30</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>

   (Quartile deviation - 12.5 marks)
   
   (Coefficient of quartile deviation = 0.45)
8. Calculate mean deviation from median and its coefficient from the following data:
100, 150, 80, 90, 160, 200, 140
(Mean deviation from median = 34.28)
(Coefficient of mean deviation = 0.74)

9. Calculate semi-interquartile range and its coefficient of the following data.

<table>
<thead>
<tr>
<th>Roll No.</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks:</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>15</td>
<td>12</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

(Q. D = 11.55 Coefficient of Q.D = 0.337)

10. Calculate the standard deviation for the following data
5, 8, 7, 11, 14
(S. D = 3.16)

11. Coefficient of variation of two series are 58% and 69% and their standard deviation is 21.2 and 15.6 what are their means?
(Means X = 36.55 and 22.60)

12. From the following data of two workers, identify who is more consistent worker?

Worker A
Average time in completing a job: 40
Standard deviation 8

Worker B
Average time in completing a job: 42
Standard deviation 6
(Worker B is more consistent as his C.V.
(14.29%) is less than that of worker A (20%)

**LONG ANSWER TYPE QUESTIONS (6 MARKS)**

1. Discuss the merits, demerits and uses of range.

2. What is the meaning of Lorenz curve? State the steps involved in drawing a Lorenz curve.

3. What do you mean by mean deviation? In what way is mean deviation a better measure of dispersion than range and quartile deviation?

4. What do understand by dispersion? Describe the various methods of computing dispersion?

5. Find the range and coefficient of range of the following:

<table>
<thead>
<tr>
<th>Age in years :</th>
<th>5-10</th>
<th>10-15</th>
<th>15-20</th>
<th>20-25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>5</td>
</tr>
</tbody>
</table>

5-10 10-15 15-20 20-25

Frequency : 10 15 20 5

(Range = 20 Coefficient of range = 0.67)

6. Find out quartile deviation, Interquartile range and coefficient of quartile deviation of the following series :
<table>
<thead>
<tr>
<th>Height in inches:</th>
<th>58</th>
<th>59</th>
<th>60</th>
<th>61</th>
<th>62</th>
<th>63</th>
<th>64</th>
<th>65</th>
<th>66</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Plants:</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>15</td>
<td>10</td>
<td>15</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

(Q.D. = 1, Inter quartile range = 2 Coeff 4QD = 0.016)

7. Calculate mean deviation from median.

<table>
<thead>
<tr>
<th>No. of fruits per plant :</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Plants :</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>11</td>
<td>18</td>
<td>24</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

(Me = 5, M.D = 1.68)

8. Find mean deviation from median of the marks secured by 100 students in a class test as given below:

<table>
<thead>
<tr>
<th>Marks:</th>
<th>60-63</th>
<th>63-66</th>
<th>66-69</th>
<th>69-72</th>
<th>72-75</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO.ofStds.</td>
<td>5</td>
<td>18</td>
<td>42</td>
<td>27</td>
<td>8</td>
</tr>
</tbody>
</table>

(M. D. = 2.26)

9. Calculate coefficient of quartile deviation from the following data:

| X(Less | 200 | 300 | 400 | 500 |
10. Calculate standard deviation of the given data:

<table>
<thead>
<tr>
<th>Size</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>3</td>
<td>7</td>
<td>22</td>
<td>60</td>
<td>85</td>
<td>32</td>
<td>8</td>
</tr>
</tbody>
</table>

(S.D = 1.149)

11. Calculate standard deviation from the following series:

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

(S.D = 15.81)

12. The given table shows the daily income of workers of two factories.

Draw the Lorenz curves for both the factories.

<table>
<thead>
<tr>
<th>Daily Income</th>
<th>0-100</th>
<th>100-200</th>
<th>200-300</th>
<th>300-400</th>
<th>400-500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory A</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Factory B</td>
<td>15</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

13. The prices of share of company x and company y are given below.

State, which company is more stable?
(C.V. of prices of share of X co. = 29.72%)

C.V. of prices of share of Y co = 45.94%

Prices of share of X co. is more stable.

14. Calculate coefficient of variation from the data given below:

<table>
<thead>
<tr>
<th>X</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>10</td>
<td>25</td>
<td>15</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

(X = 12.9, S.D = 1.997, C.V. 15.5%)

15. Compare range, quartile deviation, mean deviation and standard deviation on the basis of calculations.

16. What is meant by mean deviation? Give the steps for calculating mean deviation in case of individual series.

17. Calculate the standard deviation from following data by step deviation method.

<table>
<thead>
<tr>
<th>X</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
( = 9.165)

ANSWERS OF VERY SHORT TYPE QUESTIONS (01 MARKS)

1. The difference in the two values of quartile is called inter quartile range (Q₃ - Q₁)

2. Coefficient of variation = (S.d/Mean) x 100)

3. Lorenz curve is the graphic presentation of studying dispersion.

4. Range = Largest value - Smallest value = 48 - 22 = 26

5. Lorenz curve method is used to measure dispersion.

6. Dispersion is a measure of the variation of the item from a central value.

7. Mean deviation = ∑ f |D| / N

8. Inter quartile range

9. The major demerit of mean deviation is that it ignores - signs.

10. Relative measures are expressed in ratios or percentage, also known as coefficients of dispersion.

11. While drawing Lorenz curve zero of X-axis and 100 on y-axis are joined by a line. This line is known as line of equal distributions.

12. Demerits of range

   (i) It is not based on all the observation of series.

   (ii) It is very much affected by extreme items.

13. The most widely used and best measurement of dispersion is standard deviation.

14. Quartile deviation = (Q₃ - Q₁)/2
15. Two uses of range -

(i) Quality control

(ii) Measure of fluctuations.

UNIT III
CORRELATION

MEANING:

Correlation studies and measures the direction and intensity of relationship among variables.

For example, consider the variables family income and family expenditure. It is well known that income and expenditure increase or decrease together. Thus they are related in the sense that change in any one variable is accompanied by change in the other variable.

Similarly price and demand of a commodity are related variables; when price increases demand will tend to decreases and vice versa.

If the change in one variable is accompanied by a change in the other, then the variables are said to be correlated. We can therefore say that family income and family expenditure, price and demand are correlated.

*It measures co variation, not causation*

TYPES OF CORRELATION

*On basis of direction of change* Correlation is classified into positive and negative correlation.

The correlation is said to be positive when the variables move together in the same direction. For e.g. sale of Ice cream and temperature move in same direction.
The correlation is said to be negative when the variables move in opposite direction. For e.g. when you spend more time in studying chances of your failing decline.

* Examples of positive correlation are:
1. Price of commodity and amount of supply
2. Increase in height and weight.
3. Age of husband and age of wife.
4. The family income and expenditure on luxury items.

Examples of negative correlation are:
1. Sale of woollen garments and day temperature.
2. Price of commodity and its quantity demanded.

Degree of Correlation: The degree—or intensity of correlation/relationship between two variables is known as coefficient of correlation.

**PERFECT CORRELATION:**

When two variables change in the same proportion, it is called perfect correlation.

It may be positive or negative.

**Perfect positive correlation** – when values of both...
constant ratio in the same direction correlation coefficient value (r) is + 1

**Perfect negative correlation** – When values of both the variables change at a constant ratio in opposite direction. Value of coefficient of correlation is -1

**Absence of correlation**: When there is no relation between the variables  \( r = 0 \)

**Limited degree correlation**: The value of \( r \) varies between more than 0 and less than 1

<table>
<thead>
<tr>
<th>Degree</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect</td>
<td>+ 1</td>
<td>- 1</td>
</tr>
<tr>
<td>High</td>
<td>Between + 0.75 and + 1</td>
<td>Between -0.75 and -1</td>
</tr>
<tr>
<td>Moderate</td>
<td>Between + 0.25 and + 0.75</td>
<td>Between -0.25 &amp; -0.75</td>
</tr>
<tr>
<td>Low</td>
<td>Between 0 and + 0.25</td>
<td>Between 0 and - 0.25</td>
</tr>
<tr>
<td>Zero</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Different methods of finding correlation**

a) Karl Pearson’s coefficient method
b) Spearman’s rank correlation
c) Scatter Diagram

**Scatter diagram** offers a graphic expression of the direction and degree of correlation

Given data are plotted on a graph paper. By looking at the scatter of points on the graph, degree and direction of two variables can be found.
**Merits of Scatter Diagram**
1. Most simplest method
2. Not affected by size of extreme values.

**Demerits**
1. Exact degree of correlation cannot be found.

---

**Karl Pearson’s coefficient of correlation** is a quantitative method of calculating correlation. It gives a precise numerical value of the degree of linear relationship between two variables.

Karl Pearson’s coefficient of correlation is also known as product moment correlation.

**Formula:**

\[ r = \frac{\sum xy}{N\sigma_x \sigma_y} \]

Here,
- \( r = \) Coefficient of correlation \( x = \)
  \((X - X)\)
- \( y = (Y - Y)\)
- \( \sigma_x = \) Standard deviation of \( X \)-series
- \( \sigma_y = \) Standard deviation of \( Y \)-Series
- \( N = \) Number of observations

Karl Pearson’s coefficient of correlation is calc...
methods:

(a) Actual mean method: \(r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}\)

Here, \(r = \text{Coeff. of correlation}\)
\(x = (X - \bar{X})\)
\(y = (Y - \bar{Y})\)

(b) Assumed mean method:

\[ r = \frac{\sum dx dy - \frac{(\sum dx)(\sum dy)}{N}}{\sqrt{\sum dx^2 - \frac{(\sum dx)^2}{N}} \sqrt{\sum dy^2 - \frac{(\sum dy)^2}{N}}} \]

\(dx = \text{Deviations of x-series from assumed mean} = (X - A)\)
\(dy = \text{Deviation of y-series from assumed mean} = (Y - A)\)

\(\sum dx \cdot dy = \text{Sum of the multiple of } dx \text{ and } dy\)
\(\sum dx^2 = \text{Sum of the square of } dx\)
\(\sum dy^2 = \text{Sum of the square of } dy\)
\(\sum dx = \text{Sum of the deviation of x-series}\)
\(\sum dy = \text{Sum of the deviation of y-series}\)
\(N = \text{Number of pairs of observations}\)

(c) Step deviation method:

\[ r = \frac{\sum dx' \cdot dy' - \frac{(\sum dx')(\sum dy')}{N}}{\sqrt{\sum dx'^2 - \frac{(\sum dx')^2}{N}} \sqrt{\sum dy'^2 - \frac{(\sum dy')^2}{N}}} \]

Here \(dx' = dx/C1 \) and \(dy' = dy/C2\)
\(C_1 \) is common factor for series - x
\(C_2 \) is common factor for series - y

d) Direct Method
\[
\begin{align*}
\rho &= \frac{N \sum X \sum Y - \sum X \sum Y}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2)}}
\end{align*}
\]

**Merits of Karl Pearson’s Method**
1. Helps to find direction of correlation
2. Most widely used method

**Demerits of Karl Pearson’s method**
1. Based on large number of assumptions
2. Affected by extreme values

* Properties of correlation coefficient (\( \rho \))
  
  (i) Correlation coefficient (\( \rho \)) has no unit
  
  (ii) A negative value of \( \rho \) indicates an inverse relation.
  
  (iii) If \( \rho \) is positive then two variables move in the same direction.
  
  (iv) The value of \( \rho \) lies between minus one (1) and plus one,

  \[ -1 \leq \rho \leq 1 \]
  
  (v) If \( \rho \) is zero, the two variables are uncorrelated.
  
  (vi) If \( \rho = +1 \) or \( \rho = -1 \), the correlation is perfect.
  
  (viii) A high value of \( \rho \) indicates strong linear relationship and a low value or \( \rho \) indicates a weak linear relationship.
  
  (viii) The value of \( \rho \) is unaffected by the change of origin and change of scale.

Given two variables \( x \) and \( y \) let us define two new variables

\[
U = \frac{X - A}{B} ; \quad V = \frac{Y - C}{D}
\]

Here \( A \) and \( C \) are assumed means of \( X \) and \( Y \) respectively. \( B \) and \( D \) are common factors. They \( r_{xy} = r_{uv} \)

--- Spearman’s rank correlation method is used of correlation of qualitative variables suc
wisdom, ability, virtue etc.

**Formula**

\[ r_s = 1 - \frac{6 \sum D^2}{N^3 - N} \]

Where \( r \) = coefficient of rank correlation

\( D \) = Rank differences

\( N \) = Numbers of pairs

When ranks are repeated the formula is

\[ r_s = \frac{6[\sum d^2 + \frac{m_1^3 - m_1}{12} + \frac{m_2^3 - m_2}{12} + \ldots]}{N^3 - N} \]

Where \( m_1, m_2, \ldots \ldots \) a number of repetitions of ranks.
VERY SHORT ANSWER TYPE QUESTIONS
(ONE MARK QUESTIONS)

1. What is meant by correlation?
2. List some variables where accurate measurement is difficult.
3. What is negative correlation?
4. Give the meaning of positive correlation.
5. What is the range of simple correlation coefficient?
6. State the type of correlation when two variables change in the same ratio.
7. Give two examples of positive correlation?
9. Give two examples of negative correlation.
10. When is rank correlation method used?
11. Mention the names of different methods for measuring correlation.
12. What is the main demerit of spearman’s rank method?
13. Mention the principal short coming of Karl Pearson’s coefficient of correlation.
14. If \( r_{xy} = 0 \), then the variables \( x \) and \( y \) are
   (i) Linearly related
   (ii) not linearly related
   (iii) Independent
15. The unit of correlation coefficient between height in feet and weight in kilograms is
   (i) kg / feet
   (ii) percentage
   (iii) non-existent
ANSWER OF ONE MARK QUESTIONS:

1. Correlation is a statistical tool which studies the relationship between two variables.
2. Beauty, bravery, wisdom, ability etc.
3. The correlation is said to be negative when the variables move in opposite direction.
4. The correlation is said to be positive when the variables move together in the same direction.
5. \(-1 \leq r < 1\)
6. Perfect correlation.
7. (i) Age of husband and age of wife.
   (ii) Increase in height and weight.
8. Scatter diagram does not indicate the exact numerical value of correlation.
9. (i) Sale of woollen garments and day temperature.
   (ii) Yield of crops and price.
10. When data are of qualitative nature like beauty, honesty etc.
11. (i) Scatter diagram
    (ii) Karl Pearson’s coefficient of correlation.
    (iii) Spearman’s Rank correlation.
12. This method cannot be employed for finding out correlation in a grouped frequency distribution.
13. The value of the coefficient is affected by extreme items.
14. Independent
15. Non - existent

SHORT ANSWER TYPE QUESTIONS (3/4 MARK QUESTIONS)
1. What is meant by correlation? What are the properties of coefficient of correlations?
Correlation studies and measures the direction and intensity of relationship among variables.

*Properties of correlation coefficient (r)*

(vii) Correlation coefficient (r) has no unit
(viii) A negative value of r indicates an inverse relation.
(ix) If r is positive then two variables move in the same direction.
(x) The value of r lies between minus one (1) and plus one,

\[-1 \leq r \leq 1\]

(xi) If r is zero, the two variables are uncorrelated.
(xii) If r = +1 or r = -1, the correlation is perfect.
(ix) A high value of r indicates strong linear relationship and a low value or r indicates a weak linear relationship.

2. Interpret the values of r as 1, -1 and 0.
Ans:

r=1 indicates perfect positive correlation.

r=-1 indicates perfect negative correlation.

‘0’ value of r indicates no correlation among variables.

3. Calculate Karl Pearson’s coefficient of correlation

<table>
<thead>
<tr>
<th>Marks in Economics</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks in History</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

Solution:

<table>
<thead>
<tr>
<th>Marks in Economics</th>
<th>(x)</th>
<th>(x)</th>
<th>(x^2)</th>
<th>(y)</th>
<th>(y)</th>
<th>(y^2)</th>
<th>(xy)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(\frac{x}{X - \bar{X}})</td>
<td>(\frac{X^2}{X - \bar{X}})</td>
<td>(\frac{Y}{Y - \bar{Y}})</td>
<td>(\frac{Y^2}{Y - \bar{Y}})</td>
<td>(\frac{xy}{X - \bar{X}})</td>
<td>(\frac{xy}{X - \bar{X}})</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-4</td>
<td>16</td>
<td>6</td>
<td>-4</td>
<td>16</td>
<td>6</td>
<td>-4</td>
</tr>
</tbody>
</table>
Q4. Calculate rank correlation coefficient from the ranks assigned by two judges to five students in essay writing competition.

<table>
<thead>
<tr>
<th>Ranks by judge 1</th>
<th>Ranks by judge 2</th>
<th>D=R1-R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

So there is perfect positive correlation between marks in Economics and marks in History.

Q4. Calculate rank correlation coefficient from the ranks assigned by two judges to five students in essay writing competition.

\[
X = \frac{\sum X}{n} = \frac{40}{5} = 8
\]

\[
Y = \frac{\sum Y}{n} = \frac{50}{5} = 10
\]

Coefficient of correlation

\[
r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}
\]

\[
= \frac{40}{\sqrt{40 \times 40}} = 1
\]

So there is perfect positive correlation between marks in Economics and marks in History.
Here $N = 5$

The rank correlation is

$$r_k = 1 - \frac{6 \sum D^2}{N^3 - N}$$

$$= 1 - \frac{84}{120}$$

$$= 1 - 0.7 = 0.3$$

(LONG ANSWER TYPE QUESTIONS)

6 MARKS QUESTIONS

1. Calculate Karl Pearson’s coefficient of correlation by shortcut method.

<table>
<thead>
<tr>
<th>X</th>
<th>50</th>
<th>54</th>
<th>56</th>
<th>58</th>
<th>59</th>
<th>60</th>
<th>61</th>
<th>62</th>
<th>65</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>30</td>
<td>32</td>
<td>36</td>
<td>38</td>
<td>40</td>
<td>44</td>
<td>54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>$dx = X - A$</th>
<th>$dx^2$</th>
<th>Y</th>
<th>$dy = Y - A$</th>
<th>$dy^2$</th>
<th>$dx dy$</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>-10</td>
<td>100</td>
<td>20</td>
<td>-16</td>
<td>256</td>
<td>160</td>
</tr>
<tr>
<td>54</td>
<td>-6</td>
<td>36</td>
<td>22</td>
<td>-14</td>
<td>196</td>
<td>84</td>
</tr>
<tr>
<td>56</td>
<td>-4</td>
<td>16</td>
<td>24</td>
<td>-12</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>-2</td>
<td>04</td>
<td>30</td>
<td>-6</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>-1</td>
<td>01</td>
<td>32</td>
<td>-4</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>
## Calculate the rank coefficient of correlation of the following data:

2. \( X : \begin{array}{cccccccc}
68 & 75 & 90 & 75 & 50 & 62 & 40 & 35 \\
\end{array} \)

\( Y : \begin{array}{cccccccc}
10 & 12 & 14 & 10 & 10 & 13 & 9 & 8 \\
\end{array} \)

(Ans. \( r = +0.76 \))
3. In a beauty contest, three judges accorded following ranks to 10 participants:

<table>
<thead>
<tr>
<th>Judge I</th>
<th>1 6 5 10 3 2 4 9 7 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judge II</td>
<td>3 5 8 4 7 10 2 1 6 9</td>
</tr>
<tr>
<td>Judge III</td>
<td>6 4 9 8 1 2 3 10 5 7</td>
</tr>
</tbody>
</table>

Find out by Spearman’s rank difference method which pair of judges has a common taste in respect of beauty.

(Ans. $r_s$ I & II = -0.21; $r_s$ II & III = -0.29; $r_s$ I & III = +0.64)

What are the advantages of Spearman’s rank correlation coefficient over Karl Pearson’s correlation coefficient? Explain the method of calculating Spearman’s rank correlation coefficient.

4. Following are the heights and weights of 10 students in a class.

Draw a scatter diagram and indicate whether the correlation is positive or negative.

<table>
<thead>
<tr>
<th>Height (in inches)</th>
<th>72</th>
<th>60</th>
<th>63</th>
<th>66</th>
<th>70</th>
<th>75</th>
<th>58</th>
<th>78</th>
<th>72</th>
<th>62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (in kg.)</td>
<td>65</td>
<td>54</td>
<td>55</td>
<td>61</td>
<td>60</td>
<td>54</td>
<td>50</td>
<td>63</td>
<td>65</td>
<td>50</td>
</tr>
</tbody>
</table>

5. Calculate the correlation coefficient of the marks obtained by 12 students in Mathematics and statistics and interpret.
it.

<table>
<thead>
<tr>
<th>Marks (in Maths)</th>
<th>50</th>
<th>54</th>
<th>56</th>
<th>59</th>
<th>60</th>
<th>62</th>
<th>61</th>
<th>65</th>
<th>67</th>
<th>71</th>
<th>71</th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks (in statistics)</td>
<td>22</td>
<td>25</td>
<td>34</td>
<td>28</td>
<td>26</td>
<td>30</td>
<td>32</td>
<td>30</td>
<td>28</td>
<td>34</td>
<td>36</td>
<td>40</td>
</tr>
</tbody>
</table>

(Ans : $r = +0.78$)
INTRODUCTION TO INDEX NUMBERS

-- An index number is a statistical device for measuring changes in the magnitude of a group of related variables.

* FEATURES OF INDEX NUMBERS

-- Index numbers are expressed in terms of percentages. However, percentage sign (%) is never used.
-- Index numbers are relative measurement of group of data.
-- Index numbers offer a precise measurement of the quantitative change in the concerned variables over time.
-- Index numbers shows changes in terms of averages.

* Types of Index numbers

(i) Wholesale price index (WPI)
(ii) Consumer price index (CPI) or Cost of living index
(iii) Index of industrial production (IIP)
(iv) Index of Agricultural production (IAP)
(v) Sensex

* Methods of constructing index numbers

Construction of Simple Index numbers

Simple Aggregative Method

Construction of weighted Index numbers

Simple Average of Price Relatives Method

Weighted Average of Price Relatives Method

Weighted Aggregative Method
-- SIMPLE AGGREGATIVE METHOD:

\[ P_{o1} = \frac{\sum P_1}{\sum P_o} \times 100 \]

Here, \( P_{o1} = \) Price index of the current year
\( \sum P_1 = \) Sum of the prices of the commodities in the current year
\( \sum P_o = \) Sum of the prices of the commodities in the base year.

-- Current year: Current year is the year for which average change is to be measured or index number is to be calculated.

-- Base Year: Base year is the year of reference from which we want to measure extent of change in the current year. The index number of base year is generally assumed to be 100.

-- SIMPLE AVERAGE OF PRICE RELATIVES METHOD:

\[ P_{o1} = \frac{\sum \left( \frac{P_1}{P_o} \times 100 \right)}{N} \]

Here,
\( P_{o1} = \) Price index of the current year
\( P_1 = \) Price relatives
\( P_o = \) \( x \) 100
\( N = \) Number of commodities

-- Weighted average of price relatives method:

\[ P_{o1} = \frac{\sum RW}{\sum W} \]
Here,

\[ P_{o1} = \text{Index number for the current year} \]
\[ W = \text{Weight} \]
\[ R = \frac{P_1}{P_o} \times 100 \]

Price relatives i.e. \( \frac{P_1}{P_o} \times 100 \)

--- WEIGHTED AGGREGATIVE METHOD

(i) Laspeyre’s Method:

\[ P_{o1} = \frac{\sum P_1 q_o}{\sum P_o q_o} \times 100 \]

(ii) Paasche’s method:

\[ P_{o1} = \frac{\sum P_1 q_1}{\sum P_o q_1} \times 100 \]

* Some Important Index numbers

(i) Consumer price index (CPI): CPI is also known as the cost of living index, measures the average change in retail prices.

* Methods of Constructing CPI

(A) Family budget method:

\[ \text{CPI} = \frac{\sum WR}{\sum W} \]

Here, \( R = \frac{P_1}{P_0} \times 100 \)

\[ W \]

= Weights

(B) Aggregative expenditure method:

\[ \text{CPI} = \frac{\sum P_1 q_o}{\sum P_o q_o} \times 100 \]
(ii) **Wholesale price index (WPI)**: WPI
Indicate the change in the general price level.

(iii) **Index of industrial production (IIP)**:
IIP is used to measure the relative increase or decrease in the level of industrial production.

\[
\text{IIP}_t = \frac{\sum w \left( \frac{q_t}{q_o} \right)}{\sum w}
\]

Here, \(q_t\) = Level of production in the current year
\(q_o\) = Level of production in the base year
\(W\) = Weight

(iv) **Index of agriculture production (IAP)**:
IAP is used to study the rise and fall of the yield of principal crops from one period to another period.

(v) **Sensex**: Sensex is the short form of Bombay stock exchange sensitive index with 1978-79 as base. It is the benchmark index for the Indian stock market. It consists of 30 stocks which represent 13 sectors of the economy and the companies listed are the leaders in their respective industries.

* **PROBLEMS IN CONSTRUCTION OF INDEX NUMBERS**

(i) Deciding the purpose of index number
(ii) Selection of base year
(iii) Selection of items.
(iv) Selection of the prices of items.
(v) Selection of method of weighting
(vi) Selection of sources of data
(vii) Choice of an average.
USES OF INDEX NUMBERS:
(i) To measure the purchasing power of money.
(ii) Knowledge of change in standard of living.
(iii) Adjustment in salaries and allowances.
(iv) Help in framing suitable policies.
(v) As economic barometers.

Inflation and index numbers.
-- Inflation is described as a situation characterised by a sustained increase in the general price level.
-- Generally, inflation is measured in terms of wholesale price index.
-- Rate of inflation = \( \frac{A_2 - A_1}{A_1} \times 100 \)

Here,
\( A_1 \) = WPI for week first (1)
\( A_2 \) = WPI for week second (2)

VERY SHORT ANSWER TYPE QUESTIONS.
ONE MARK QUESTIONS

1. What do you mean by index numbers?
2. State two categories of price index numbers.
3. Define base year.
4. Name the consumer groups for which CPI is computed.
5. What is price relative?
6. Give Laspeyre’s formula for weighted index number.
7. Where can we get some important index numbers such as CPI, WPI IIP etc.?
8. Write the formula for calculating index of industrial production.
9. How many types of CPI are constructed in India?
10. Define current year.
11. What is the difference between simple index number and weighted index numbers?
12. Give the formula to calculate the rate of inflation.
13. Which sign is used to indicate the price index number?
14. What does wholesale price index indicate?
15. Give Paasche’s formula for weighted index number.
16. Which index number is known as cost of living index?
17. Mention the weight of primary articles in wholesale price index.
18. In how many groups all the commodities are classified for WPI?
19. Mention the weightage of different groups in index of industrial production.
20. Which index number is generally used to measure inflation?
21. Which change is measured in consumer price index?
22. Which item having the highest weight in CPI for industrial worker?
23. In which index number there is a relative importance of the items?

ANSWERS OF ONE MARK QUESTIONS

1. An index number is a statistical device for measuring changes in the magnitude of a group of related variables.
2. (a) Simple index numbers
   (b) Weighted index numbers.
3. Base year is the year of reference from which we want to measure extent of change in the current year.
4. There the three consumer group for which CPI is computed:
   (i) CPI for industrial worker
   (ii) CPI for urban non manual employees
   (iii) CPI for agricultural labourers.
5. A price relative is the percentage ratio of the value in the current year to its value in the base year.
6. \[ P_{01} = \frac{\sum P_{1Q_{0}}}{\sum P_{0Q_{0}}} \times 100 \]

7. Economic survey

8. \[ \Pi P_{e1} = \frac{\sum W_{i} P_{i}}{\sum W_{0}} \times 100 \]

9. There are three types of CPI.
   (i) CPI (IW)
   (ii) CPI (UNME)
   (iii) CPI (AL)

10. Current year is the year for which average change is to be measured or index number is to be calculated.

11. In simple index number, all items of the series are accorded equal weightage or importance but in weighted index number different items of the series are accorded different weightage, depending upon their relative importance.

**SHORT ANSWER TYPE QUESTIONS. 3/4 MARKS QUESTIONS**

1. State three difficulties of constructing index numbers.
2. What are the desirable properties of the base period?
3. Why do we need an index number?
4. Write a short note on inflation and index numbers.
5. Why is it essential to have different CPI for different categories of consumers?
6. Mention the difficulties in construction of consumer price index.
7. What is the difference between a price index and a quantity index?
8. Define index number. State its utility.
9. What does an index of industrial production measure? Give formula to calculate IIP.

10. Calculate price index number for 2004 taking 1994 as the base year from the following data by simple aggregative method:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price in 1994 (in Rs.)</td>
<td>100</td>
<td>40</td>
<td>10</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>Price in 2004 (in Rs.)</td>
<td>140</td>
<td>60</td>
<td>20</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

(Ans. 130)

11. Construct an index number for year 2005 taking 2000 as the base year from the following data by simple average of price relative method:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price in 2000 (in Rs.)</td>
<td>100</td>
<td>80</td>
<td>160</td>
<td>220</td>
<td>40</td>
</tr>
<tr>
<td>Price in 2005 (in Rs.)</td>
<td>140</td>
<td>120</td>
<td>180</td>
<td>240</td>
<td>40</td>
</tr>
</tbody>
</table>

(Ans. 122.32)

12. Calculate weighted average of price relative index number of prices for 2010 on the basis of 2004 from the following data:

<table>
<thead>
<tr>
<th>Goods</th>
<th>Weight</th>
<th>Price 2004 (Rs.)</th>
<th>Price 2010 (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>20</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Rice</td>
<td>12</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Milk</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Ghee</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Sugar</td>
<td>6</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(Ans. 139.4)

13. Calculate price index number from the following data:
Laspeyre’s method:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Base year</th>
<th>Current year</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Price Rs.</td>
<td>Quantity</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>C</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

(Ans. 124.44)

14. From the data given below, construct Paasche’s price index:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Base year</th>
<th>Current year</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Price Rs.</td>
<td>Quantity</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

(Ans. 69.84)

16. From the data given below construct the consumer price index number:

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Price Relatives</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>250</td>
<td>45</td>
</tr>
<tr>
<td>Rent</td>
<td>150</td>
<td>15</td>
</tr>
<tr>
<td>Clothing</td>
<td>320</td>
<td>2</td>
</tr>
<tr>
<td>Fuel and lighting</td>
<td>190</td>
<td>5</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>300</td>
<td>1</td>
</tr>
</tbody>
</table>
LONG ANSWER TYPE QUESTIONS. 6 MARKS

QUESTIONS

1. Explain the problems involved in the construction of index numbers.
2. Discuss the various uses of index numbers.
3. Discuss the features of index numbers.
4. Give the meaning of whole sale price index numbers. Discuss the utility of WPI.
5. Write short notes on:
   (a) Base year
   (b) CPI
   (c) WPI
   (d) IIP

6. What do you meant by index numbers?
   Discuss the importance of index numbers.

8. Define consumer price index number.
   Explain the uses of consumer price index numbers.
INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

KEY POINTS

* The sole purpose of the British colonial rule in India was to reduce the country to being a feeder economy for Great Britain’s own rapidly expanding modern industrial base.

* Conditions in the Indian economy on the eve of independence:

  (i) Law level of economic development:
  The colonial govt. never made any sincere attempt to estimate India’s national and per capita income. The estimates given by Dr. Rao - growth of GDP was only 2% while the growth of per capita output was just 1/2 (0.5) percent.

  (ii) Backward agricultural sector: Due to

  a. Land tenure system - Zamidari system, Mahalwari system and Ryotwari system.
  b. Forced commercialisation of Agriculture
  c. Partition of the country.

  (iii) Less developed Industrial sector: Due to

  a. De-industrialisation - decline of Indian handicraft industry.
  b. Capital good industries were lacking
  c. Limited operation of public sector
  d. Discriminatory tariff policy.

  (iv) Unfavourable foreign trade:

  a. Net exporter of raw material and importer of finished good.
  b. Britain had monopoly control on foreign trade.
  c. Drain of India’s wealth.

  (v) Adverse demographic condition:

  a. High death rate - 40 per thousand.
  b. High infant mortality rate - 18 per thousand.
  c. Mass illiteracy - 83% illiterate.
  d. Low life expectancy - 32 years
  e. Low standard of living - people used to spend 80% to 90% of thei
(vi) Under developed infrastructure:

Absence of good roads, electricity generation, health, education and communication. However some efforts have been made to develop basic infrastructure like roads, railway ports, water transport post & telegraph by the British rulers. The main motive was not to provide basic amenities to the Indian people but for their colonial interest.

(vii) More dependence on primary sector

* Largest share of work force which was 72% was engaged in agriculture.
  * 10% manufacturing while 18% workforce were engaged in service sector.

*Some positive side-effects of the British rule in India:
  a. Provide transport facilities, largely in terms of railway.
  b. Development of ports.
  c. Provision of post and telegraph service.
  c. British Govt. left a base of a strong and efficient administrative set up.

Questions:

1 Mark Questions:

1. What was the infant mortality rate of India during British rule?
   Ans. Infant mortality rate was 18 per thousand.

2. State the life expectancy in India during British rule.
   Ans. Life expectancy was 32 years.

3. What do you mean by infant mortality rate?
   Ans. Infant mortality rate means number of deaths of children below the age of one year per thousand live birth.

4. Give the name of one economist who estimated India’s per capital income during colonial period.

5. What is meant by commercialization of agriculture?

6. What was the motive behind the de-industrialization by the colonial Govt. in India?
   Ans. (i) To get raw materials from India at cheap rate.
   (ii) To sell British manufactured goods in Indian market at high prices.

7. Which industries were adversely affected due to partition.
   Ans. Jute and textile industries.

8. What does the export surplus mean?
   Ans. When export of a country is more than import.

9. What percentage of India’s working population was engaged in secondary and tertiary sector during British rule?
   Ans. 10% in secondary sector and 18% in tertiary sector.

*3/4 Marks Questions:

1. Mention four features of India’s agriculture on the eve of
independence.

2. What were the objectives of the British Govt. in bringing about infrastructural change in the Indian economy.

3. How would you explain the drain of wealth during the British rule.

4. Discuss occupational structure of Indian economy at the time of independence.

5. State three main features of Indian economy at the time of independence.

6. Mention the state of Indian industries on the eve of independence.

*6 Mark Questions:

1. Critically appraise some of the shortfalls of the industrial policy pursues by the British colonial administration.

2. What were the main causes of India’s agricultural stagnation during the colonial period.

3. Give a quantitative appraisal of India’s demographic profile during the colonial period.

4. Were there any positive contribution made by the British in India? Discuss.

**INFORMATION: 1950-1990**

**KEY POINTS:**

**Economy:**

An economy is an organization of economic activities which provide people with the means to work and earn a living.

- **Economy (Types):**
  
  i. Capitalist
  
  ii. Socialist
  
  iii. Mixed

  - Capitalist economy: In which major economic decisions (what to produce, how to produce and for whom to produce) are left to the free play of the market forces.
  
  - Socialist economy: In which major economic decisions are taken by the Govt. keeping in view the collective interest of the society as a whole.
  
  - Mixed Economy: In which major economic decisions are taken by the central Govt. authority as well as are left to the free play of the market forces.

**Economic Planning:**

Economic Planning means utilization of country’s resources in different development activities in accordance with national priorities.

Economic Planning is a system under which a set of targets is defined by the Govt. and these targets are to be achieved within a specified period of time, taking resources of the country in consideration.

**Goals of Planning in India:**

- Short-term and Long-term Objectives/Goals:
  
  Short-term goals are plan specific and are to be achieved over a period of 5 years. Long-term objectives are common to all plans and are to be achieved over a period
**Long-term Goals of Planning in India:**

- Modernisation: Adoption of new technology.
- Self reliance: Reducing dependence on imports.
- Economic Growth: Increase in the aggregate output of Goods & services.
- Equity: Reduction inequality of income or wealth.
- Full employment: Refers to a situation when all the people in the working age group are actually engaged in some gainful employment.

**Short-term Goals of Planning in India:**

Short term objectives vary from plan to plan depending on current needs of the country. For example first plan (1951-56) focused on higher agricultural production while in second plan (1956-61) shifted the focus from agriculture to Industry. In India growth and equity are the objectives of all the five year plans. The goal of current five year plan (11th, 2007-2012) is faster, broad-based and inclusive growth.

**Conditions of Agriculture (1950-1990):**

*Main Features of Indian Agriculture:*

1. Low productivity
2. Disguised unemployment.
3. Dependence on rainfall
4. Subsistence farming - objective of farmer is to secure subsistence for his family not to earn profit.
5. Traditional inputs
6. Small holdings
7. Backward technology.
8. Landlord tenant conflict.

*Problems of Indian Agriculture:

**Institutional Problems:**
1. Small and scattered holdings.
2. Poor implementation of land reforms.
3. Lack of credit and marketing facilities.

**Technical Problems:**
1. Lack of irrigation facilities.
2. Wrong cropping pattern.
3. Outdated technique of production.

**General Problems:**
1. Pressure of population on land.
2. Land degradation.
3. Subsistence farming
4. Social environment.
5. Crop losses- by pest, insect, flood, draught etc.
*Reforms in Indian Agriculture:

**Institutional Reforms/ Land reforms:**
i. Abolition of intermediaries.
ii. Ceiling on land holdings.
iii. Regulation of rent.
iv. Consolidation of holdings.

* General reforms:*
  i. Expansion of irrigation facilities.
  ii. Provision of credit.
  iii. Regulated markets and co-operative marketing societies.
  iv. Price support policy.

**Technical Reforms/ Green Revolution:**
i. Use of HYV seeds.
ii. Use of domical fertilizers.
iii. Use of insecticides and pesticides for crop protection.
iv. Scientific rotation of crops.
v. Modernized means of cultivation.

*Achievements of Green revolution:*
1. Rise in production and productivity.
2. Increase in income.
3. Rise in commercial farming.
4. Impact on social revolution - use of new technology HYV seeds, fertilizers etc.
5. Increase in employment.

*Failures of green revolution:*
1. Restricted to limited crops and areas such as two crops wheat & rice growing states like Punjab, Haryana, U.P and Andhra Pradesh.
5. Ecological degradation.

**Industry(1950-90):**

*Role of Industrial sector in India:*
Industrialization is important for an overall growth of a country. Following points highlight the importance of Industry is an economy:
1. Provides employment.
2. Raising people income
3. Promotes regional balance.
4. Leads to modernization.
5. Helps to modernize agriculture.
6. Leads to self-sustainable development
8. Key to high volume of exports.
* Industrialization is a pre-condition for the final take-off of an economy.

**Industrial Development Since Independence:**
Share of industrial sector in the GDP has increased up to 8.3% in the 10th plan. It is expected to be 10.5% in the 11th plan.
The following important changes have taken place:
(i) Development of infrastructure like power transport, communication, banking & finance, qualified and skilled human resource.
(ii) Much progress in the field of research and development.
(iii) Expansion of public sector
(iv) Building up of capital goods industry
(v) Growth of non-essential consumer goods industries.

**Problems of Industrial Development in India:**
1. Sectoral imbalances - agriculture and infrastructure have failed to provide the support to the industrial sector.
2. Regional imbalance - restricted to few states.
3. Industrial sickness - which raised the problem of unemployment.
4. Higher cost of industrial product due to lack of healthy competition.
5. Dependence on the Government - for reduction in tax or duty to make import easier.
6. Poor performance of the public sector
7. Underutilization of capacity.
8. Increasing capital - output ratio

**Role of Public Sector / Govt. in Industrial Development:**
Direct intervention of the state was considered essential in view of the following factors.
1. Lack of capital with the private entrepreneurs.
2. Lack of incentive among the Pvt. entrepreneurs - low demand due to limited size of the market.
3. Socialistic pattern of society - main aim of Govt. is to generate employment rather than profits.
5. Development of backward areas.
6. To prevent concentration of economic power.
7. To promote import substitution.

**Industrial Policy Resolution (IPR) 1956:**
Industrial policy is an important instrument through which the govt. regulates the industrial activities in an economy. The 1956 resolution laid down the following objectives of industrial policy:
(a) To accelerate the growth of industrialization.
(b) To develop heavy industries.
(c) To expand public sector.
(d) To reduce disparities in income and wealth.
(e) To prevent monopolies and concentration of wealth and income in the hand of a small member of individuals.

*Features of IPR 1956:
Features of Industrial Policy Resolution of 1956 were:
1. New Classification of Industries: Industries were classified into three schedule depending upon role of state.
   (a) Schedule-A - 17 industries listed in schedule-A whose development would be the responsibility of state.
   (b) Schedule-B - 12 industries were included in schedule-B, which could be established both as the private and public sector enterprises.
   (c) Schedule-C - Other residual industries were left open to private sector.
2. Stress on the role of cottage and small scale industries.
3. Industrial licensing: Industries in the Pvt. sector could be established only through a license from the government.
4. Industrial concessions - were offered of Pvt. entrepreneurs for establishing industry in the backward regions of the country. Such as tax rebate and concessional rates for power supply.

*Small scale Industries (SSI):
A small scale industry is presently defined as the one whose investment does not exceed Rs. 5 crore.

*Characteristics of SSI:
1. Labour intensive - employment oriented
2. Self - employment.
3. Less capital intensive.
4. Export promotion.
5. Seed beds for large scale industries.
6. Shows locational flexibility.

*Problems of SSI:
1. Difficulty of finance.
2. Shortage of raw material.
3. Difficulty of marketing.
4. Outdated machines & equipments
5. Competition from large scale industries.

Foreign Trade:
At the time of independence raw material was exported from India to Britain in abundance on the other hand finished goods from Britain were imported into India. Notably our balance of trade was favourable (exports > imports)

After independence India’s foreign trade recorded a noticeable change such as.
   (i) Decline in percentage share of agricultural exports.
   (ii) Increase in percentage share of manufactured goods in total exports.
   (iii) Change in direction of export trade and import trade.

* Trade Policy:
In the first seven five year plans of India, the trade was commonly called an ‘inward looking’ trade strategy. This strategy is technically known as ‘import substitution’.
substituting imports with domestic production. Imports were protected by the imposition of tariff and quotas which protect the domestic firms from foreign competition.

*Impact of Inward looking Trade strategy on the domestic industry.*
1. It helped to save foreign exchange by reducing import of goods.
2. Created a protected market and large demand for domestically produced goods.
3. Helped to build a strong industrial base in our country which directly lead to economic growth.

*Criticism of import substituting strategy*
1. It did not lead to growth.
2. Lack of competition implied lack of modernisation.
3. Growth of inefficient public monopolies
4. It did not lead to efficiency.

**Industrial Licensing:**
Licensing is a tool for channelizing scare resources in predetermined priority sector of an economy. The Industries Development and Resolution Act (IDRA) was enacted in 1951.

*Main Objectives of IDRA Act of 1951:*
1. Regulation of industrial development in accordance with planned priorities.
2. Avoidance of monopoly
4. Prevention of undue competition between large-scale industries and small scale industries
5. Optimum utilization of scare foreign exchange resources.

*Under this Act the followings were applicable:*
   A. All the scheduled industries should be registered with the govt.
   B. A licence must be obtained by all the new industries.
   C. Govt. is authorised to examine the working of any industrial undertaking.
   D. If the undertaking continued to be mismanaged, Govt. can take over its management.

*Criticism against Industrial Licensing:*
1. There was an ad hoc system for accepting or rejecting an application for licence.
2. The quality of techno economic examination conducted by Director general of technical development was generally poor.
3. Licensing policy resulted in under utilisation of capacity in many industries.
4. In reality the policy helped large business houses in accumulating economic power.

**Permit Licence Raj:**
The licensing authorities many a times granted licence to big business houses without proper scrutiny of their applications.

Questions:
*One mark Questions:*

1. Define economy.
   Ans. It is organization of economic activities which provides people with the means to work and earn a livelihood.

2. Who is the chairman of the planning commission in India?
   Ans. Prime Minister is the Chairman of Planning Commission in India.

3. What was the idea behind abolition of intermediaries?
   Ans. The aim of abolition of intermediaries was to make direct link between government and real cultivators so that cultivators can get maximum profit.

4. Write the classification of industries according to IPR-1956.
   Ans. Classification of industries according to IPR 1956 was.

5. What do you mean by green revolution?
   Ans. Green revolution refers to the tremendous increase in agricultural production and productivity with the introduction of new technology.

6. What is meant by small scale industries?
   Ans. Small scale industries are those in which the investment limit is Rs 5 crores.

7. What is marketable surplus.
   Ans. Marketable surplus means production sold in the market after self consumption by the farmers.

8. Who formulates five year plans in India.
   Ans. Planning Commission.

9. Write the duration of current five year plan.

10. Name any two Common goals of five year plan.
    Ans. Growth and equity.

11. Name the type of economy adopted in India.
    Ans. Mixed economy

12. Name three general problems of an economy.
    Ans. What to produce, how to produce and to whom to produce.

13. What is import - substitution?
    Ans. Import substitution means encouraging domestic production of such goods which the country is importing.

*3/4 Marks Questions:

1. Explain how import substitution can protect domestic industry.

2. Why was public sector given a leading role in industrial development during the planning period?

3. How subsidies encourage farmers to use new technology? explain.

4. What were the benefits of green revolution.

5. How has India’s occupational structure changed during the period from 1950 to 1990.

6. Small scale industries promote rural development. explain.

7. Write the limitation of green revolution.

8. What are the main goals of the five year plans in India?
9. Distinguish between planning objectives and plan objectives.

*6 Marks Questions:
1. Explain the problems of industrial development in India.
2. Explain the role of small scale industries in the socio economic development of our country.
3. How did green revolution benefit and harm the farmers?
4. Describe the objectives and main features of industrial policy resolution 1956.
5. What is import substitution policy? why was it adopted in the initial period of development in India?
6. Describe the achievements and failures of economic planning in India.

**ECONOMIC REFORMS SINCE 1991**

**KEY POINTS:**

**Meaning:**
Economic reforms or structural adjustment is a long term multi-dimensional package of various policies (Liberalisation, privatisation and globalisation) and programme for the speedy growth, efficiency in production and make a competitive environment. Economic reforms are adopted by Indian Govt. in 1991.

*Factor’s responsible for Economic reforms.*
1. Fall in foreign exchange reserve.
2. Adverse balance of payments
3. Mounting fiscal deficit.
4. Rise in prices
5. Failure of public enterprises.

*Stabilisation measures:* These are short run measures introduced by Govt. to control rise in price, adverse balance of payment and fall in foreign exchange reserve.

*Structural adjustment:* These are long-run policies the goal of structural reforms is to abolish controls, eliminate bureaucratic hurdles and redtapeism and make the decision making process efficient and transparent.

In the new economic policy 1991, Structural reforms can be seen with respect to:
1. Liberalisation.
2. Privatisation

Liberalisation means removing all unnecessary control and restriction like permits licenses, protectionist duties quotas etc.

**liberalization:**

**Economic reforms under liberalization:**
1. Industrial sector reforms
2. Financial sector reforms.
3. Fiscal reforms.
4. Foreign exchange reforms.
5. Trade and investment reforms.

*Privatisation is the general process of involving the private sector in the ownership or operation of a state owned enterprises.

**Policies adopted for privatization:**
1. Contraction of public sector.
2. Abolish the ownership of Govt. in the management of public enterprises.
2. Sale of shares of public enterprises.

**Globalisation:**
Globalisation may be defined as a process associated with increasing openness growing economic interdependence and deepening economic integration in the world economy.

**Policy promoting globalization:**
1. Increase in equity limit of foreign investment.
2. Partial convertibility.
3. Long term trade policy.
4. Reduction in tariff.

**An Appraisal of LPG Policies**

**Positive Impact**
1. Increase in foreign investment
2. Increase in foreign exchange reserves
3. A check of inflation.
4. Increase in domestic product.
5. Increase in exports.
6. Consumer sovereignty.

**Negative Impact.**
1. Neglect of agriculture
2. Increase in competition for domestic industry.
3. Increase in urbanisation.
4. Disaffect of disinvestment policy.
5. Spread of consumerism.
6. Cultural erosion.

**Questions:**

**1 Mark Questions:**
1. State the meaning of economic reforms.
   **Ans.** Economic reforms refers, those measures which are adopted for the speedy growth of economy, efficiency in production and make a competitive environment.
2. How does increase in fiscal deficit creates the requirement of economic reforms?
   **Ans.** Due to increasing fiscal deficit the interest paid by the Govt. for the borrowings become 36.4% of the Govt. expenditure. So economic reforms become essential for the Govt.
3. State the name of economic reform which makes free to economy from direct or physical controls imposed by the Govt.
4. What is meant by foreign exchange reserve?
   **Ans.** Stock of foreign currency held with the Govt. at given point of time called foreign exchange reserve.

5. Why the requirement of tax reforms arose under liberalisation?
   **Ans.** Prior to liberalisation, tax structure was highly complicated and evasive. Fearing a heavy burden of taxation it promote evade the payment of tax, so tax reforms become essential for the Govt.

6. What is meant by direct tax?
   **Ans.** Direct taxes are those taxes, the burden of which can not be shifted on to other’s eg. Income tax.

7. Define indirect tax with the help of example.
   **Ans.** Indirect taxes are those taxes the burden of which can be shifted on to other for example sales tax.

8. What is meant by devaluation?
   **Ans.** Devaluation refers to lowering in the official value of a currency with respect to gold or foreign currency.

9. State the meaning of privatisation.
   **Ans.** Privatisation is the general process of involving the private sector in the ownership of operation of a state owned enterprises.

10. What is meant by globalisation?
    **Ans.** Globalisation may be defined as a process associated with increasing openness growing economic interdependence and deepening economic integration in the world economy.

11. What benefit goes to domestic Industries of reduction in tariff?
    **Ans.** Due to reduction in tariff, imports becomes cheaper and profit margin increase on exports for domestic industries.

*3/4 Marks Questions:*
1. What is meant by economic reforms? Write the measures adopted under economic reforms.
2. What is meant by adverse balance of payments. How does adverse balance of payments creates the requirement of economic reforms?
3. How is the insufficient production of public sector enterprises become a main cause of adaptation of economic reforms?
4. What’s meant by liberalisation? State the measures adopted for liberalisation under economic reforms.
5. Define privatisation. State the measures adopted for privatisation.
6. Explain the meaning of globalisation and as the main result of this policy explain the outsourcing.
7. Write any four argument in favour of economic reforms.
8. State any four negative impact of economic reforms.

*5/6 Marks questions:*
1. Explain the measures taken for globalisation of economy.
2. State the meaning of liberalisation and explain the measures.
adopted for liberalisation.

3. Explain the positive impact of economic reforms over Indian economy.

4. Explain the negative impact of economic reforms.

UNIT 5: CURRENT CHALLENGES FACING INDIAN ECONOMY
CHAPTER: POVERTY

INTRODUCTION

Poverty is a blasphemy that Indian economy is facing now days. Nobody would like to live in poverty. But it is the destiny or deed of the people which forces them to be in abject poverty. Poverty has multifaceted dimensions. It is not only a challenge for India as every fourth person in India is poor, but also for the whole world where more than 260 million people are underfed every day. With the dawn they think for food and with the dusk they sleep with empty bellied or half bellied food. Poverty seems to be the situation of inability for a person to fulfill basic requirements of life. As it poses a challenge it is a call to action. Our economy accepts it and to remove it from the face of India many policies and programmes were implemented and appreciated. The current days approaches of India in this line give India a separate identity in the world.

POVERTY – ITS MEANING

Poverty refers to the state of not having enough money to take care of basic needs of life such as nutritious food, descent clothing, and safe shelter. (Here I am using these terms because everybody is getting food, clothing and shelter, but the poor people do not get nutritious food, descent clothing, and safe shelter)

Or

It a situation in which an individual or a group of individuals are unable to fulfill the basic needs of life such as nutritious food, descent clothing, and safe shelter.
WHO ARE POOR

DIMENSIONS OF POVERTY

Poverty has multi dimensions:
- Hunger and starvation
- Poor health
- Lack of clean water and sanitation
- Living with a sense of helplessness
- Leads to debt trap
- Non access to modern education and health facilities

POVERTY LINE

Meaning: Poverty line is a cutoff point on the line of distribution which distinguishes people as poor and non poor.

Methods of Fixing Poverty Line in India:

There are two methods

(a) Consumption Criteria (Minimum Calorie Criterion):

According to this criterion poverty line is fixed on the basis of average calorie intake. According to the Planning Commission the average calorie intake to determine poverty is 2400 calorie and 2100 calorie per person per day in rural and urban areas respectively.

(b) Income Criteria (Minimum Consumption Expenditure Criterion)
According to this criterion based on the consumption criteria how much income is required will determine the poverty line. On the basis of the year 2000 prices it was Rs. 328 and Rs. 454 in rural and urban areas respectively per person per month. But recently planning commission has prescribed (As per Tendulkar Panel’s report) this minimum income limit as Rs. 27 and Rs. 33 per person per day in rural and urban areas respectively. This means the food basket which gives 2400 calorie costs Rs. 27 in rural areas and which gives 2100 calorie costs Rs. 33 in urban areas.

**VARIANTS OF POVERTY**

Poverty has two variants

(a) **Absolute Poverty:**
- It refers to poverty of people as per the poverty line.
- The person whose income is below the poverty line are considered as poor.
- The concepts of Monthly Per capita Expenditure and Consumption of Average Calorie Intake are used to measure Absolute Poverty.

(b) **Relative Poverty:**
- It refers to poverty of people in relation to other people, regions or nations.
- It is interpreted in terms of inequality of income.
- The concepts of Lorenz Curve and Ginni coefficient are used to measure relative poverty.

**CAUSES OF POVERTY**

i. Rapid population growth
ii. Low level of Capital Formation
iii. Lack of alternate employment opportunities other than agriculture
iv. Illiteracy
v. Wide spread unemployment
vi. Lack of proper implementation of Public Distribution System
vii. Indebtedness
viii. Poverty itself (Vicious Circle of Poverty)

**POLICIES AND PROGRAMMES TOWARDS POVERTY ALLEVIATION**

The government’s approach to poverty reduction was of three planks.

- Growth oriented approach
- Specific poverty alleviation programmes/Targeted anti-poverty Measures
- Providing basic amenities to the people

(a) **Growth Oriented Approach**
- This approach was implemented on the assumption of the “Trickle Down Theory of Development”.
It was expected that the effect of economic growth would spread to all sections of the society and also to the poor section.

Govt. initiated rapid industrialization and Green revolution to make this a success.

(b) **Targeted Anti-poverty Measures**

Under this approach, the government has initiated many Specific Poverty Alleviation Programmes. These are as follows.

a. *Mahatma Gandhi National Rural Employment Guarantee Programme* (MGNREGP)
b. *Swarnajayanti Gram SwarojgarYojana* (SGSY)
c. *SwarnaJayantiSahariRojgarYojana* (SJSRY)
d. *SampoornaGrameenRojgarYojana* (SGRY)

© **Providing basic amenities to the people**

Under this approach, the government initiated many programmes which provide social securities and basic amenities of life to the people and address poverty. The programmes are as follows.

- Public Distribution System (PDS)
- Integrated Child Development Scheme (ICDS)
- Mid-day Meals Scheme (MMS)
- National Social Assistance programmes (NSAP)
- Indira AwasYojana (IAY)
- Antodaya Anna Yojana (AAY)
- Million Wells scheme (MWS)
- National Rural Drinking Water Programme (NRDWP)

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**EXPECTED QUESTIONS**

**A. Multiple Choice Questions (MCQs)**

1. The minimum calorie intake per person per day in rural areas is __________ in defining Poverty Line.
   
   (a) 2000 calorie  
   (b) 2100 calorie  
   (c) 2200 calorie  
   (d) 2400 calorie

2. A cut-off point on the line of distribution which distinguishes people as poor and non poor is called ____________.

   (a) Absolute Poverty  
   (b) Relative Poverty  
   (c) Poverty Line  
   (d) Chronic Poverty
3. When was MGNREGA enacted in the parliament of India?
   (a) 2000  (b) 2005  (c) 2006  (d) 2010

4. Who has given the concept of Vicious Circle of Poverty?
   (a) Nurkse  (b) Adam Smith  (c) Marshall  (d) Amartya Sen

5. Those who regularly move in and out of Poverty are termed as ________.
   (a) Chronic Poor  (b) Churning Poor  (c) Always Poor  (d) occasionally poor

Answers:
1. (d)  2. ©  3. (b)  4. (a)  5. (b)

B. Very Short Answer Questions (1 Mark)

1. Define Poverty.
   Poverty refers to the state of not having enough money to take care of basic needs of life such as nutritious food, descent clothing, and safe shelter.

2. What is Head count ratio?
   It is the percentage of people living below poverty line. It is also called incidence ratio.

3. Define Poverty Line.
   Poverty line is a cutoff point on the line of distribution which distinguishes people as poor and non poor.

4. What do you mean by absolute poverty?
   It refers to poverty of people as per the poverty line.

5. Which organization collects data on Poverty in India?
   NSSO

6. Who fixes poverty line in India?
   The Planning Commission of India.

7. Defining Churning Poor.
   A group of people who are regularly move in and out of poverty are called Churning Poor.
8. Specific Poverty Alleviation programmes as an approach to eradicate poverty was implemented in India since which Five Year Plan?

Third Five Year plan

C. Short Answer Questions (¾ marks)

1. Define Poverty. Write down its dimensions.
   Answer: Poverty may be defined as “a situation in which an individual or a group of individuals are unable to fulfill the basic needs of life such as nutritious food, descent clothing, and safe shelter”.
   **Dimensions of Poverty**
   - Hunger and starvation
   - Poor health
   - Lack of clean water and sanitation
   - Living with a sense of helplessness
   - Leads to debt trap
   - Non access to modern education and health facilities

2. How poor people are identified in India?
   Answer: In India poor people are identified through fixation of poverty line

   **Methods of Fixing Poverty Line in India:**

   There are two methods

   a. **Consumption Criteria (Minimum Calorie Criterion):**

      According to this criterion poverty line is fixed on the basis of average calorie intake. According to the Planning Commission the average calorie intake to determine poverty is 2400 calorie and 2100 calorie per person per day in rural and urban areas respectively.

   b. **Income Criteria (Minimum Consumption Expenditure Criterion):**

      According to this criterion based on the consumption criteria how much income is required will determine the poverty line. On the basis of the year 2000 prices it was Rs. 328 and Rs. 454 in rural and urban areas respectively per person per month.

3. Define poverty Line. Explain the methods of fixing Poverty Line in India.

   **Meaning:** Poverty line is a cutoff point on the line of distribution which distinguishes people as poor and non poor.

   **Methods of Fixing Poverty Line in India:**

   As in Answer of Question No-2

4. Distinguish between absolute poverty and relative poverty.

   **Answer:** **Distinction between Absolute Poverty and Relative Poverty**

<table>
<thead>
<tr>
<th>Basis</th>
<th>Absolute Poverty</th>
<th>Relative Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>It refers to poverty of people as</td>
<td>It refers to</td>
</tr>
</tbody>
</table>
Answer:
- Due to lack of institutional credit facilities people were borrowed money from non-institutional sources for their social and economic requirements.
- The unemployment and intermittent nature of work compels indebtedness.
- This resulted in depart with the existing wealth and aggravated the plight of poverty in both rural and urban areas.

6. “India is poor because it is poor”. Explain.
Answer:
- This is propounded by Ragnar Nurkse
- Once there is poverty there is low productivity
- It results in low income
- It leads to low saving and low investment
- It leads to low production and low income
- Which drives to poverty

**D. Long Answer Questions (6 marks)**

1. Briefly explain various causes of poverty in India?

Answer: Various causes of poverty in India are as follows.

i. Rapid population growth
ii. Low level of Capital Formation
iii. Lack of alternate employment opportunities other than agriculture
iv. Illiteracy
v. Wide spread unemployment
vi. Lack of proper implementation of Public Distribution System
vii. Indebtedness
viii. Poverty itself (Vicious Circle of Poverty)

2. Explain various measures undertaken by Govt. of India to eradicate poverty.

<table>
<thead>
<tr>
<th>Terms of interpretation</th>
<th>The person whose income is below the poverty line are considered as poor</th>
<th>It is interpreted in terms of inequality of income</th>
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</thead>
<tbody>
<tr>
<td>Method of measurement</td>
<td>The concepts of Monthly Per capita Expenditure and Consumption of Average Calorie Intake are used to measure Absolute Poverty</td>
<td>The concepts of Lorenz Curve and Ginni coefficient are used to measure relative poverty</td>
</tr>
</tbody>
</table>
Answer: The government’s approach to poverty reduction was of three planks.

- Growth oriented approach
- Specific poverty alleviation programmes/Targeted anti-poverty Measures
- Providing basic amenities to the people

(a) **Growth Oriented Approach**

- This approach was implemented on the assumption of the “*Trickle Down Theory of Development*”.
- It was expected that the effect of economic growth would spread to all sections of the society and also to the poor section.
- Govt. initiated rapid industrialization and Green revolution to make this a success.

(b) **Targeted Anti-poverty Measures**

Under this approach govt. have initiated many Specific Poverty Alleviation Programmes. These are as follows.

- **Mahatma Gandhi National Rural Employment Guarantee Programme (MGNREGP)**
- **Swarnajayanti Gram Swarojgar Yojana (SGSY)**
- **SwarnaJayantiSahariRojgarYojana (SJSRY)**
- **SampoornaGrameenRojgarYojana (SGRY)**

© **Providing basic amenities to the people**

Under this approach govt. initiated many programmes which gives social securities and basic amenities of life to the people and address the poverty. The programmes are as follows.

- Public Distribution System (PDS)
- Integrated Child Development Scheme (ICDS)
- Mid-day Meals Scheme (MMS)
- National Social Assistance programmes (NSAP)
- Indira Awas Yojana (IAY)
- Antodaya Anna Yojana (AAY)
- Million Wells scheme (MWS)
- National Rural Drinking Water Programme (NRDWP)

3. Briefly explain MGNREGP.

Answer:

- This programme was launched on 2\(^{nd}\) February 2005
It is the first ever law internationally, that guarantees wage employment at an unprecedented scale
This programme guarantees at least 100 days of wage employment to at least one each willing adult member of each rural family in a year
Primary objective of this programme is augmenting wage employment
The auxiliary objective is to address the problem of poverty by creating incremental assets in village economy

4. Critically evaluate the ongoing poverty alleviation programmes of India.

**Achievements:**
- It brought down the rate of poverty from 37.2% in 2004-05 to 28% in 2011-12
- It creates incremental assets in village areas and improve the standard of living of people in village economy
- It secured the life of the people by giving assured employment

**Shortcomings:**
- Due to unequal distribution of assets the benefits of poverty alleviation programmes are appropriated by the non-poor
- Resource allocation for PAPs is insufficient
- Lack of participation of poor is a hindrance in reducing poverty

5. How can income earning assets address the problem of poverty?

Answer: Income earning assets address the problems of poverty in the following manner
- Through this people have a means to earn their livelihood
- It creates capital base
- It creates job opportunities
  - This leads to eradication of poverty

E. Value Based Questions (3/4 Marks)

1. By implementing PDS system govt. has addressed the problem of poverty. What kind of economic values does it implies?

Answer:
- It provide social securities to the poor
- It bridges the gap between poor and non-poor
- It remove hunger from the face of India
- It brings social and economic uplift of the poor
2. “Make in India is brain child of the Prime Minister Mr. Narendra Modi”. How does this address the problem of poverty in India and what kind of Socio-economics values does it have?

Answer: Through Make In India Campaign

- There is inflow of FDI to India
- It creates more availability of capital for investment
- There is more capital formation
- It brings new technology in Indian industries
- It helps in proper utilization of Indian natural and human resources

Through these effects there is reduction of poverty.

3. In spite of many efforts there is no remarkable change in the poverty scenario of India. Suggest some methods of your own to address this problem. Also mention the economic values it inculcates in the mind of the people.

Answer: Some suggested measures

- Active participation of poor in proper implementation of govt. programmes
- Proper identification of the real poor
- Timely review of the ongoing programmes
- Encouraging people for education of their children

UNIT 5: CURRENT CHALLENGES FACING INDIAN ECONOMY
CHAPTER: RURAL DEVELOPMENT

INTRODUCTION

India is proverbially called “a nation of villages”. Time and again it has been pointed out that rural India is poor although it feed the nation. Rural development as an integral part of country’s socio-economic development has been recognized as a sine qua non. The goal of rural development is the enrichment of the quality of human life in rural areas accompanied by bridging the rural-urban gap through provision of all amenities. The national policy and programmes for a successful rural development task should aim at diversification of economic activities, minimizing the dependence of rural household on agriculture and bringing about a significance increase in the share in both output and employment of industries, business and service components of the rural economy.
development merely remains as agricultural development and neither solves the problems of rural employment and poverty nor of equitable distribution of resources and income-generating assets.

RURAL DEVELOPMENT – IT’S MEANING

Rural development is the comprehensive socio-economic process to develop the areas that are lagging behind the overall development of the village economy.

Or

Rural development is an action plan for the economic and social upliftment of rural areas.

DIMENSIONS/ISSUES OF RURAL DEVELOPMENT

The dimensions or key issues of rural development constitute of those areas in which a village economy generally lagging behind in comparison to its counterparts. The challenging issues of rural development in India are as follows.

- Development of human resources
- Land Reforms
- Development of productive resources
- Infrastructure development
- Measures for poverty alleviation

RURAL CREDIT

- **Meaning:**
  Credit is an agreement in which the lender supplies the borrower with money, goods and services in return for the promise of future payment.

- **Need of Credit in rural economy:**
  In rural areas credit is needed due to the following reasons:
  - To realize higher productivity in agriculture and non-agriculture sector.
  - The time gestation between crop sowing and realization of income after production is too long, so farmer has to borrow to meet his initial investment.
  - The rural agriculture is dependent upon marginal and subsistence farming by the millions of small farmers who are not in a position to save for productive purposes due to low output.

- **Sources of Credit:**
  Rural credit comprises of the followings
  o **Formal/Institutional lending System:**
    - Credit by commercial banks
    - Credit by Regional Rural Banks (RRB’s)
    - Credit by Land Development Banks (LDB’s)
AGRICULTURAL MARKETING

- **Meaning:**
  The process of assembling, storage, processing, transportation, packaging, grading and distribution of agricultural commodities is called agricultural marketing.

- **Functions of agricultural market:**
  - Collection of surpluses from the individual farmers
  - Transportation to nearest assembling centre
  - Grading and standardization
  - Pooling
  - Processing
  - Warehousing
  - Packing
  - Transportation to the consuming centers
Bringing the buyers and sellers together
Sale to the ultimate consumers
Arranging requisite finance for the above purposes

**Need of agricultural marketing in India**

Agricultural marketing is needed due to the following reasons
- To give a better price of the produce to the farmer
- To link the farmer directly to the consumers by avoiding intermediaries
- To minimize wastage
- To save the farmers against exploitation and cheating from the traders

**Measures taken by the govt. to improve agricultural marketing**
- Govt. regulated the markets
- Govt. made provision of physical infrastructures like roads, railways, warehouses, godowns, cold storage etc.
- Govt. establishes cooperatives to realize fair prices
- Govt. assured the farmers through Minimum Support Prices (MSP)

**Problems of agricultural marketing in India**
- Predominance of private traders
- Improper warehouses
- Lack of grading and standardization
- Inadequate transport facilities
- Presence of large number of intermediaries
- Malpractices in unregulated markets
- Inadequate market information
- Inadequate credit facilities

**Alternative agricultural marketing channels in India**

Some of such marketing systems are briefly given below-

- **Group Marketing**: Group marketing includes, joint planning, funding, implementation, pricing, sharing risk equally in the marketing and reaping the benefit of collective bargaining.
- **Cooperative Marketing**: This system is pursued on the principle of “self help by mutual help”
- **Direct Marketing**: Farmers come into direct contact with the consumers and receive the payment directly from the consumers. This system is prevailing in many parts of the country viz.,
  - (i) **Apni Mandi**: In Punjab and Rajasthan
  - (ii) **Rythu Bazrs**: In Andhra Pradesh
  - (iii) **Uzhavar Santhaigal**: In Tamil Nadu
  - (iv) **Raithara Santhegalu**: In Karnataka,
Contract Farming: Contract farming, is a type of farming wherein the industry or perspective buyer enters into a contract with the farmer and promises to buy the farmer’s produce at a pre-negotiated price under pre-negotiated conditions.

1.7 ROLE OF COOPERATIVES

Cooperatives played a vital role in rural development. These are as follows.

- Main aim of the cooperative was to get the poor and indebted farmers out of poverty and out from the clutches of money lenders.
- Within short span of time, role of cooperatives extended beyond agricultural credit.
- It started covering activities such as production, farming, marketing and processing.
- Cooperatives provide credit to the farmers, the most needed thing in the farming.
- Apart from this cooperatives help farmers by providing top quality fertilizers, seeds, insecticides, pesticides etc at reasonable price.
- Farmers also get marketing, warehousing facility and transportation support from the cooperatives.
- Service cooperative societies help the poor and marginal farmers with tractors, threshers etc on rent.
- Rural cooperative societies are now entering into real estate, power, insurance, health care and communication sector.

If these keep on working with an objective of development then days are not far when quality of rural life would be far better than urban India.

DIVERSIFICATION IN TO PRODUCTIVE ACTIVITIES

- **Meaning of diversification:**

  Diversification may be defined as the entrepreneurial use of farm resources for a non-agricultural purpose for commercial gain.

  Or

  **Diversification** of **agriculture** refers to the shift from the regional dominance of one **crop** to regional production of a number of crops, to meet ever increasing demand for cereals, pulses, vegetables, fruits, oilseeds, fibres, fodder and grasses, fuel, etc.

- **Need of agricultural diversification:**

  Diversification in Indian agriculture is needed due to the f
a. There is greater risk in depending exclusively on agriculture
b. To provide productive sustainable livelihood options to rural people
c. Agriculture is seasonal in nature – to give employment to the people throughout the year.
d. To overcome poverty and other tribulations by providing sustainable employment in rural areas.

❖ Merits of agricultural diversification
  o A combination of crops is expected to utilize more fully the properties of soil than does concentration, year after year on one crop.
  o Rotation of crops facilitates reduction of weeds.
  o It make possible to grow more than one crop in a year in the same field where it would be impossible to plant and harvest the same crop.
  o It also facilitates breeding of live stock which feeds on the residue of crops, providing additional source of income to the farmers in the form of milk, meat, wool and fuel.
  o It creates a sustainable employment opportunities in village economy.
  o It enable the farmer to spread his risk.
  o It enable the farmer for a sustainable source of income throughout the year.

❖ Process of Agricultural diversification

Agricultural diversification is a wide ranging process. In common sense it means

✓ Diversification between agricultural and allied activities like animal husbandry, fishing etc.

✓ Diversification in cropping pattern
व दिवर्शीफिकेशन बीटवन फूड क्रोप एण्ड नॉन फूड क्रोप
व दिवर्शीफिकेशन बीटवन नुसरी एण्ड नॉन नुसरी क्रोप्स
व दिवर्शीफिकेशन बीटवन ट्राडिशनल क्रोप्स एण्ड हॉर्टिक्यूल्चर
v दिवर्शीफिकेशन बीटवन लोव प्रोडक्टिविटी एण्ड लोव वॉल्युम्स एण्ड हाइ वॉल्युम्स क्रोप्स

**Some of the important agricultural diversifications in India**
A. Animal Husbandry
B. Operation Flood (White Revolution):
C. Fisheries (Blue Revolution):
D. Horticulture (Golden Revolution):

**ORGANIC FARMING**

**Meaning:**
Organic farming is a method of crop and livestock production that involves much more than choosing not to use pesticides, fertilizers, genetically modified organisms, antibiotics and growth hormones.

Or
The USDA National Organic Standards Board (NOSB) definition as of April 1995 is: “Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony.”

Or
Organic farming is a form of agriculture that relies on techniques such as crop rotation, green manure, compost, and biological pest control.

**Benefits /Advantages of Organic Farming:**

**CONSUMER BENEFITS:**

✓ **Nutrition**

The nutritional value of food is largely a function of its vitamin and mineral content. In this regard, organically grown food is dramatically superior in mineral content to that grown by modern conventional methods.

✓ **Poison-free**
A major benefit to consumers of organic food is that it is free of contamination with health harming chemicals such as pesticides, fungicides and herbicides.

✓ **Food Tastes Better**

It comes as no surprise, therefore, that organically grown food tastes better than that conventionally grown.

✓ **Food Keeps Longer**

Organically grown plants are nourished naturally, rendering the structural and metabolic integrity of their cellular structure superior to those conventionally grown. As a result, organically grown foods can be stored longer and do not show the latter’s susceptibility to rapid mold and rotting.

**GROWER BENEFITS:**

✓ **Disease and Pest Resistance**
✓ **Weed Competitiveness**
✓ **Lower Input Costs**
✓ **Drought Resistance:** Organically grown plants are more drought tolerant.
✓ **Added Value:** There is a discerning market of consumers who recognize the greater food value of organic produce and are willing to pay premium prices for it.

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### EXPECTED QUESTIONS

**A. Multiple Choice Questions (MCQs)**

1. Which of the following is an institutional source of credit?
   
   (a) Money Lenders
   (b) Relatives
   © Cooperative Society
   (d) Traders

2. The period between ____________ is known as golden revolution in India.
   
   (a) 1991-2000
   (b) 1990-2003
   © 1991-2003
   (d) 1993-2001

3. Organic farming uses
   
   (a) Organic Manure
   (b) Bio fertilizer
   © Organic Pesticides
   (d) All of these

4. Which of the following is not related to agricultural marketing?
5. Which of the followings is the apex body in coordinating the institutions involved in rural financing system?

(a) RRBs (b) NABARD
© Cooperative Societies (d) Commercial Banks

6. When was NABARD established?

(a) 1892 (b) 1928
© 1982 (d) 1992

7. Which of the followings is called micro credit programme?

(a) Credit by SHGs (b) Credit by NABARD
© Credit by Commercial Banks (d) Credit by Cooperatives

8. Which of the following is an alternative channel of agricultural marketing in Pune?

(a) Apni Mandi (b) Hadaspar Mandi
© Rythu Bazars (d) Uzhabar Sandies

9. Operation Flood was started in which Year?

(a) 1966 (b) 1970
© 1976 (d) 1990

10. Golden Revolution is related to

(a) Horticulture (b) Fish culture
(b) Animal Husbandry (d) None of these

11. Who is known as the pioneer of Operation Flood in India?

(a) Prof. Hiralal Choudhuri (b) Dr. Norman Burlog
© Dr. Vargesh Kurien (d) Prof. Amartya Sen
12. Which of the followings is an policy instrument to improve agricultural marketing in India?

(a) Regulation of Markets  (b) Assurance of MSP
© Provision of Physical infrastructure  (d) Establishment of Cooperatives

Answers:
1. c  2. c  3. d  4. a  5. b  6. c
7. a  8. b  9. b  10. a  11. c  12. b

B. Very Short Answer Questions (1 mark)

1. What is rural development?
   
   Rural development is the comprehensive socio-economic process to develop the areas that are lagging behind the overall development of the village economy.

2. What is meant by agricultural diversification?
   
   Diversification may be defined as the entrepreneurial use of farm resources for a non-agricultural purpose for commercial gain.

3. What is TANWA?
   
   TANWA (Tamil Nadu Women in Agriculture) is a project initiated in Tamil Nadu where rural women find employment in non-farm jobs, as well as they are trained in latest agricultural techniques.

4. What is ‘Golden Revolution’?
   
   A significant increase in horticulture production during the period of 1991-2003 is called “Golden Revolution” in India.

5. Write two instruments to safeguard the interests of farmers by the government.
   
   Two instruments are fixation of minimum support price (MSP), maintenance of Buffer Stocks.

6. What is co-operative marketing?
   
   Co-operative marketing is a measure to ensure a fair price to farmers. Member farmers sell their surplus to the co-operative society which substitutes collective bargaining in place of individual bargaining and hence provides best advantages to the farmers.

7. What do you mean by ‘Operation Flood’?
   
   It is a system whereby all the farmers pool their milk produce and the same is processed and marketed to urban centers.
8. What do you mean by micro credit programme?

Credit provisions made by self help groups (SHG) to its different members is known as micro credit programme.

9. Define non-institutional sources of agricultural credit.

Non-institutional sources include money lenders, traders, commission agents, landlords, relations and friends.

10. What is agricultural marketing?

The process of assembling, storage, processing, transportation, packaging, grading and distribution of agricultural commodities is called agricultural marketing.

11. Mention two limitations of rural banking.

(a) Large number of willful defaulters

(b) High incidence of overdue installments by the farmers

12. Name two institutional sources of agricultural credit.

Two institutional sources of agricultural credit are

a. co-operative credit societies

b. commercial banks.

13. Which state has an efficient implementation of milk co-operatives?

Gujarat state has the efficient implementation of milk co-operatives.

14. When was NABARD established?

NABARD (National Bank for Agriculture and Rural Development) was established in 1982.

15. What is sustainable development?

It is that level of economic development which takes care of the needs of present generation without compromising the needs of future generation. In other words it a level of development in an eco-friendly manner.

**C. Short Answer Questions (3/4 Marks)**

1. Give two basic objectives of the co-operative credit societies.

- Main aim of the cooperative was to get the poor and indebted farmers out of poverty and out from the clutches of money lenders.
- To help farmers by providing top quality fertilizers, seeds, reasonable price.
2. Explain the importance of self help groups (SHG’S) in rural areas.

- It fill the gap in the formal credit system
- It overcome the difficulties of collateral in formal credit
- It creates thriftiness (Saving habits) in people
- It create a platform to solve many social problems
- It creates women empowerment

3. Why is state intervention necessary to regulate the activities of private traders in the rural agricultural sector?

- To give a better price of the produce to the farmer
- To link the farmer directly to the consumers by avoiding intermediaries
- To minimize wastage
- To save the farmers against exploitation and cheating from the traders

4. What are the advantages of organic farming?

- It has more nutritional value
- It is poison free
- Low input cost
- Higher earning

5. Write Short notes on :

a. Operation Flood

- It is a system whereby all the farmers pool their milk produce according to different grading and the same is processed and marketed to urban centers.
- To accelerate the pace of white revolution this programme was launched in the year 1970 by national Diary Development Board (NDDB).
- It made India, a milk-sufficient nation, the largest milk producer in the world, surpassing the USA in 1998, with about 17 percent of global output in 2010–11.
- In 30 years it doubled the milk available per person, and which made dairy farming India’s largest self-sustainable rural employment generator.
- Dr. Vargesh Kurien is the pioneer of Operation Flood in India (He was the chairman of NDDB).

b. Blue Revolution

i. Blue Revolution means the adoption of a package programme to increase the production of fish and marine products.
ii. The Blue Revolution in India was started in 1970 during the Fifth Five-Year Plan when the Central Government sponsored the Fish Farmers Development Agency (FFDA).

iii. The fish production in the country has increased from 0.75 million tonnes in 1950-51 to 68.69 million tonnes in 2006-2007. Fishing, aquaculture and a host of allied activities, a source of livelihood to over 14 million people as well as a major foreign exchange earner, in 2005-06 contributed about one per cent of the total GDP and 5.3 per cent of the GDP from agriculture sector.

iv. Prof. Hiralal Choudhuri “The father of Induced Breeding” is considered as the father of Blue Revolution in India.

c. Animal Husbandry as an alternative livelihood option in India.
   i. Animal husbandry plays an important role in national economy and in socio-economic development of the country.
   ii. Animal husbandry output constitutes about 30% of the country’s output.
   iii. Livestock sector provides employment to 11 million in principal status and 9 million in subsidiary status.
   iv. According to the 18th livestock census conducted on 15th October 2007 the livestock population in India is 529.7 million and poultry bird at 648.8 million.
   v. India rank first i.r.o. buffalo, 2nd in cattle and goat, 3rd in Ship, 4th in ducks, 5th in chicken and 6th in camel population in the world.
   vi. India has became the largest producer of milk in the world.

d. Golden Revolution:
   - A significant increase in horticulture production is called “Golden Revolution’ in India.
   - The period between 1991-2003 is termed as 'Golden Revolution'.
   - This period witnessed a tremendous increase in the productivity in horticulture.
   - As a result, during this period, there was a huge increase in the production of various fruits, vegetables, spices and other horticulture products.
   - During this period the planned investment in horticulture became highly productive and the sector emerged as a sustainable livelihood option.
   - India has emerged as a world leader in producing varieties of fruits like mangoes, bananas, coconuts, cashew nuts and a number of spices.
   - India is the 2nd largest producer of fruits and vegetables in the world.
   - This sector provides employment to around 19% of the total labor forces in India.

D. Long Answer Questions (6 Marks)

1. What do you mean by agricultural diversification? Why is it required?

   Meaning of diversification:
   Diversification may be defined as the entrepreneurial use of farm resources for a non-agricultural purpose for co
Need of agricultural diversification:

Diversification in Indian agriculture is needed due to the following reasons.

a. There is greater risk in depending exclusively on agriculture
b. To provide productive sustainable livelihood options to rural people
c. Agriculture is seasonal in nature – to give employment to the people throughout the year.
d. To overcome poverty and other tribulations by providing sustainable employment in rural areas.

2. What steps have been initiated by the government to improve agricultural market system in India?
   - Govt. regulated the markets
   - Govt. made provision of physical infrastructures like roads, railways, warehouses, godowns, cold storage etc.
   - Govt. establishes cooperatives to realize fair prices
   - Govt. assured the farmers through Minimum Support Prices (MSP)

3. What are the functions of co-operative credit societies?
   - Main aim of the cooperative was to get the poor and indebted farmers out of poverty and out from the clutches of money lenders.
   - Within short span of time, role of cooperatives extended beyond agricultural credit.
   - It started covering activities such as production, farming, marketing and processing.
   - Cooperatives provide credit to the farmers, the most needed thing in the farming.
   - Apart from this cooperatives help farmers by providing top quality fertilizers, seeds, insecticides, pesticides etc at reasonable price.
   - Farmers also get marketing, warehousing facility and transportation support from the cooperatives.
   - Service cooperative societies help the poor and marginal farmers with tractors, threshers etc on rent.
   - Rural cooperative societies are now entering into real estate, power, insurance, health care and communication sector.

4. What do you understand by the term rural development? What are the key issues of rural development?

Rural development is the comprehensive socio-economic process to develop the areas that are lagging behind the overall development of the village economy.

Key Issues of Rural Development

- Development of human resources
- Land Reforms
E. Value Based Questions

1. In recent years people are facing a great deal of health problems due to consumption of food grains which are produced by using high level of chemical fertilizers and pesticides. As an aware citizen of India what steps would you suggest to overcome these difficulties through farming methods? Also mention the economic values achieved through this.

- Adopting organic farming method
- Creating awareness among people
- Govt. initiatives for organic farming
- Avoiding hybrid products

2. “Growth of rural economy depends on infusion of credit”. But a poor farmer in India caught in debt trap by taking credit from the informal sources. How could it be solved through the intervention of govt. what socio-economic impacts does it have on village economy?

- Govt. should provide credit through bank
- Agricultural subsidies to be given to the farmers
- Govt. should encourage saving habits among people
- Deposit mobilization habit should be created among people
- People in rural areas to be banking friendly

3. Do you think the “Digital India” programme would help the farmers in achieving a better standard of life? Explain from the socio-economic context of India.

Yes:

- It make people aware about their farming activities
- Through sms services they can know about new technology
- They can get assistance about their farming directly from the experts
- They can use modern technology
- They can be informed about govt. programmes
INTRODUCTION

The biped animal human being is the greatest and finest creation of god on the earth. But this population can both assets and liability of a country. They became liabilities when not participated in any economic activities. They became assets only when they participate in economic activities. This turned human being in to resources. The basic difference between human being and other creatures is that by nature man has the capacity to store and transmit knowledge, which other creatures have not. The scientific approach paves the way to increase these through training and skill formation. This is the positive side of a large population which is often overlooked when we look only at the negative side considering only the problems of providing the population with food, education and access to health facilities. Here comes the role of the society not to leave people in the hands of destiny but to provide ample scope to turn them in to assets. This chapter is a guideline to these issues how human being turned in to assets rather than remaining liability of a country.

HUMAN CAPITAL - MEANING, ELEMENTS

❖ Meaning of Human Capital:

Human capital is the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability of an individual to perform labor so as to produce economic value.

Alternatively, Human capital is a collection of resources—all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively by individuals in a population. These resources are the total capacity of the people that represents a form of wealth which can be directed to accomplish the goals of the nation or state or a portion thereof.

Alternatively, Human Capital as the aggregation of the innate abilities and the knowledge and skills that individuals acquire and develop throughout their lifetime.

❖ Elements of Human Capital:

There are basically three elements of Human Capital:

- People
Characteristics of Human Capital

- Human capital comprises an innate and an acquired component.
- Human capital is a non-tradable good.
- Human capital can be acquired either formally or informally.
- Human capital has qualitative as well as quantitative aspects.
- Human capital can be either general or specific.

HUMAN CAPITAL AND PHYSICAL CAPITAL

Difference between Human Capital & Physical Capital

<table>
<thead>
<tr>
<th>Basis</th>
<th>Human Capital</th>
<th>Physical Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>Human capital is the stock of knowledge, skill and productivity embodied in human being</td>
<td>Physical capital is the stock of physical assets which helps in further production process</td>
</tr>
<tr>
<td>Tangibility</td>
<td>It is intangible</td>
<td>It is tangible</td>
</tr>
<tr>
<td>Separable</td>
<td>It cannot be separated from its owner</td>
<td>It can be separable from its owner</td>
</tr>
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<td>-----------</td>
<td>--------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Returns</td>
<td>Investments in Human capital generate both pecuniary and non-pecuniary returns</td>
<td>Investments in physical capital generate only pecuniary returns</td>
</tr>
<tr>
<td>Depreciation</td>
<td>It depreciates slowly, but can be restored through training</td>
<td>It depreciates rapidly with time</td>
</tr>
<tr>
<td>Superiority</td>
<td>It is superior to Physical capital give rise to another Human Capital</td>
<td>It is inferior to Human capital as it can be used only by the help of Human Capital</td>
</tr>
</tbody>
</table>

**HUMAN CAPITAL FORMATION - MEANING, STRATEGY**

- **Meaning of Human Capital Formation:**
  Human Capital formation is the process of addition to the stock of knowledge, skill and productivity of human being.

- **Strategy for Human Capital Formation:**
  According T.W. Schultz, there are five ways of developing human capital.
  
  a. Provision of health facilities which affect the life expectancy, strength, vigor and vitality of the people.
  
  b. Provision of on the job training which enhances the skill of labor force.
  
  c. Arranging education at the primary, secondary and higher levels.
  
  d. Study and extension programmer for the adults.
  
  e. Provision of adequate migration facilities to families to adjust to changing job opportunities.
The sources of human capital formation are as follows.

- Investment on education:
- Investment on Health:
- Investment on on-the-job training:
- Investment on acquiring Information:
- Investment on Migration:

The significance of the human capital can be assessed from the following arguments.

- Better use of Capital Goods:
- Better use of Improved Knowledge:
- Modernization of Attitudes:
- Economic Growth:
- Effective use of physical capital:
- Increases life expectancy:
- Improves Quality of life:
- Control of population growth:

Problems of Human Capital Formation in India:

- The main problems of human capital formation in less developed countries like India in brief are as under.
- 1. Faster increase in population.
• 3. More stress on the provision of building and equipments.
• 4. Shortage of health and nutrition facilities.
• 5. No facilities of on the job training.
• 6. Study programme for adults.
• 7. Half hearted measures for promotion of employment.
• 8. No manpower planning.

**PROSPECTS OF HUMAN DEVELOPMENT IN INDIA**

- The seventh five year plan stressed upon the importance of human capital.
  - In India, ministry of education at the centre and state level NCERT, (National Council of Educational Research and Training), UGC (University Grants commission) , AICTE (All India Council of Technical Education) Regulate the education sector.
- In India, Ministry of Health at the union and the State level and ICMR (Indian Council of Medical Research) regulate the health sector.
  - World Bank states that India will become the knowledge economy. Also if India uses its knowledge as much as Ireland does, than the per capita income will rise $ 3000 by the year 2020.

**HUMAN CAPITAL AND HUMAN DEVELOPMENT**

Human capital and human development are interlinked with each other. Still there is a line of distinction between these two. This is as follows.

<table>
<thead>
<tr>
<th>Basis</th>
<th>Human capital</th>
<th>Human development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>The stock of knowledge and skill embodied in human being</td>
<td>Human development is the process of well being of the human being</td>
</tr>
<tr>
<td>Role of education and health</td>
<td>Human Capital consider education &amp; health as a means to increase labour productivity</td>
<td>Human Development is leased on the Idea that education &amp; health are integral to human well being</td>
</tr>
</tbody>
</table>
Productivity of investment

In Human capital, investment in education and health is considered to be unproductive, if it does not increase output of goods & services.

In case of human development, investments in education and health is taken to be productive, even if it does not leads to higher output.

Treatment of Human being

Human capital treats human beings as a means to an end; the end being the increase in productivity.

Human capital treats human beings as an end in itself.

**Human capital and Economic Growth:**

Human capital formation raises the process of Economic Growth and economic growth raises the process of human capital formation.

- **Rise in human capital raise economic growth** -

  Modern attitude and outlook, better quality of life, higher life expectancy, more efficiency, more production.

- **Rise in economic growth raise human capital formation** -

  Economic Growth
Rise in per capita income

More investment in education and health

Rise in Human Capital

EDUCATION SECTOR IN INDIA

- **Importance and objectives of education:**
  - Education produces good citizens.
  - Education facilitates use of resources in the country.
  - Develops science and technology.
  - Expands mental horizon of the people.
  - Promotes cultural standard of the citizens.
  - Develops human personality.

- **Problems relating to development of education in India.**
  - Large number of illiterates
  - Inadequate vocationalisation
  - Gender bias
  - Low rural access level
  - Low government expenditure on education

- **Growth of Education Sector in India**

  There has been considered growth in the field of Education. The number of schools increased from 230.7 thousands (1950-51) to 1,215.8 thousands (2005-06). The no. of teachers in the same period increased from 751 thousand to 6010 thousands & no of students from 23,800 thousands to 2, 22,700 thousands.

  - **Gross Environment Ratio**

    Gross Enrollment Ratio (GER) is the total enrolment of pupil in grade or cycle or level of education, regardless of age, expressed as percentage of the corresponding eligible official age group population in a given school year. GER in elementary education increased steadily from 82% in 1950-51 to 94.85% in 2005-06.

  - **Literacy Rate**
The literacy rate has increased from 18.33% to in 1951 to 64.84% in 2001

- **Elementary Education in India**

Elementary Education in India means eight years of schooling from the age of six i.e. primary & middle school education together, is called Elementary Education. Elementary Education, therefore is the foundation on which the development of every citizens and the nation as a whole hinges. The government has made elementary education compulsory and free. But, the goal of universal elementary education in India has been very difficult to achieve till now. In December 2002, the government of India made free and compulsory education, a fundamental right of all children in the age group of 6-14 years.

- **Primary Education Schemes**

Government has made number of schemes to make “Education for all”

The following are the few schemes

- **Sarva Shiksha Abhiyan (SSA)**

It was launched in 2001 to universalize & improve the quality of Elementary Education in India through community ownership of Elementary Education. The SSA is being implemented in partnership with states to address the needs of children in age group of 6-14 years. The achievements under SSA up to September 30, 2007, include constructions of 7,13,179 additional classrooms, 1,72,381 drinking water facilities, construction of 2,18,075 toilets. Supply of free textbooks of 6.64 crore children & appointment of 8.10 lakh teacher’s besides opening of 1,86,985 (till 31.3.07) new schools.

- **National Programme for Education of Girls at Elementary Education (NPEGEL):**

The programme is aimed at enhancing girl’s education by providing additional support for development of a model girl child friendly school. In every cluster with more intense community mobilization and supervision of girls enrolment in schools. Under NPEGEL, 35,252 models schools have been opened. In addition to supporting 25,537 Early Childhood Care & Education (ECCE) centers. Besides, 24,837 additional classrooms have been constructed and 18.75 lakh teachers have been given training on gender sensitization.

- **Kasturba Gandhi Balika Vidyalaya (KGBV)**

The Kasturba Gandhi Balika Vidyalaya (KGBV) scheme was launched in July 2004 for
setting up residential schools at upper primary level, for girls belonging predominantly to the SC, ST, OBC & minority community. The scheme ran as separate scheme for two years but was merged with Sarva Siksha Abhiyan w.e.f April 1, 2007.

- **Secondary Education**

Secondary Education, which starts with classes IX and X leads to senior secondary classes XI and XII aims to in cooperate basic skills & analytical abilities. It provides a stepping stone to higher professional and technical education.

- **Higher Education**

The Higher Education System comprises both general and technical education. The higher education has undergone a manifold expansion since Independence. The no. of universities in the country has increased from 27 in 1950-51 to 350 in 2005-06 .University Grants Commission (UGC) takes measures for promotion and coordination of university education and determination and maintenance of standards in teaching, examination and research in universities and allocation and disbursement of grants to them.

- **Technical Education**

Technical Education plays a vital role in human resources development of the country by creating skilled manpower, enhancing Industrial productivity and improving the quality of life. Since independence, there has been a phenomenal expansion of Technical Education Sector in the country. With 43 diploma level polytechnic at the time of independence, the no. increased to 1,231 in 2000-01. Similarly, the no. of degree level engineering institutions rose from 38 in 1947 to 1265 in 2001-02. All India Council for Technical Education (AICTE) is the apex body in the field of Technical Education.

**EXPECTED QUESTIONS**

**A. Multiple Choice Questions (MCQs)**

1. Which five year plan recognized the importance of Human Capital?
   
   (a) Fifth  
   © Seventh  
   (b) Sixth  
   (d) Eighth

2. In which year the Right to Education (RTE) Act was passed in the parliament of India?
   
   (a) 2007  
   © 2012  
   (b) 2009  
   (d) 2014

3. Which of the following is not a source of Human Capital formation?
   
   (a) Investment of Infrastructure  
   (b) Investment
4. Which of the following is a problem of human capital formation in India?
(a) Brain drain  (b) Low literacy rate
© Growing Population  (d) All of these

5. Which of the following organization is designing text books up to class-XII?
(a) UGC  (b) NCERT
© CBSE  (d) ICSE

6. As per the Census 2011 what is the literacy rate in India?
(a) 63%  (b) 73%
© 83%  (d) 93%

7. When was Sarva Sikshya Abhiyan launched in India?
(a) 1999  (b) 2001
© 2007  (d) 2009

8. When was Mid day Meal Scheme launched in India?
(a) 1995  (b) 2000
© 2007  (d) 2012

Answers:
1. c  2.b  3.a  4.d  5.b  6.b  7.b  8.a

B. Very Short Answer Questions (1 mark)

1. What is meant by human capital formation?
   Human capital formation refers to the process of adding to the stock of human capital overtime.

2. Define human capital.
   Human capital is the stock of ‘skill and expertise’ of a nation at a point of time.

3. What is investment in education?
   Expenditure on education by the government is known as investment in education.

4. Which five year plan recognized the importance of human capital?
   The seventh five year plan puts in print the importance of human capital.
5. Why do we need to invest in human capital?

It is necessary to invest in human capital and to make use of the physical capital in an efficient manner and to develop man’s ability to increase productive capacity of a country.

6. What is on-job training?

On-the-job training refers to the training provided to the workers by the firm to home their specialized skills. It makes them more efficient and productive.

7. What is the difference between literacy and education?

Education is a much wider concept than literacy refers to the ability to read and write. Education includes three parameters primary, secondary and tertiary education all educated people and literate all literate people are not necessary educated.

8. How does human capital formation improve quality of life?

Literate, healthy, skilled and trained people are an asset for an economy therefore it is the quality of population which means more economic growth.

C. Short Answer Questions (3/4 Marks)

1. What are three major sources of human capital formation?
2. Explain the concept of human capital formation.
3. How does human capital formation raise social justice?
4. Discuss the growth in government expenditure on education. What does it indicate?
5. Whom do you call literate? How is literacy different from education?
6. How migration promotes human capital formation?
7. Explain how educational planning is necessary for human capital formation.
8. Explain the role of human capital in economic development.

D. Long Answer Questions (6 Marks)

1. Explain the sources of human capital formation.

The sources of human capital formation are as follows.

- Investment on education:
- Investment on Health:
- Investment on on-the-job training:
- Investment on acquiring Information:
- Investment on Migration:
2. Discuss how education is an important input for the development of the nation.

- Education produces good citizens.
- Education facilitates use of resources in the country.
- Develops science and technology.
- Expands mental horizon of the people.
- Promotes cultural standard of the citizens.
- Develops human personality.

3. Discuss the principal difficulties in the process of human capital formation in India.

The main problems of human capital formation in less developed countries like India in brief are as under.

- Faster increase in population.
- Defective pattern of investment in education. In the developing
- More stress on the provision of building and equipments.
- Shortage of health and nutrition facilities.
- No facilities of on the job training.
- Study programme for adults.
- Half hearted measures for promotion of employment.
- No manpower planning.
- Neglect of agriculture education.

4. What are the future prospects of human capital formation in India?

The seventh five year plan stressed upon the importance of human capital.

- In India, ministry of education at the centre and state level NCERT, (National Council of Educational Research and Training), UGC (University Grants commission) , AICTE (All India Council of Technical Education) Regulate the education sector.

- In India, Ministry of Health at the union and the State level and ICMR (Indian Council of Medical Research) regulate the health sector.

- World Bank states that India will become the knowledge economy. Also if India uses its knowledge as much as Ireland does, than the per capita income will rise $ 3000 by the year 2020.

6. “Despite many steps still education to all is a distance dream in India”.
I defend this:

- Large number of illiterates
- Inadequate vocationalisation
- Gender bias
- Low rural access level
- Low government expenditure on education

**E. Value Based Questions**

1. The government of India has passed the RTE Act to provide free and compulsory education to all. But the provision of expenditure is too less which make it a distance dream. Would you suggest some measures in this regard?

   - There should be special provision in the budget
   - The real people should get the benefit
   - Govt. should levied more tax on the reach and utilize the amount for the education of the poor
   - In village areas free education to be provided with quality

2. Explain the economic and social values which can be achieved by an upward movement in the literacy rate of women in India.

   - It helps in women empowerment
   - It helps in checking population growth
   - It helps in solving social problems
   - It helps in driving towards a maternal society

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**UNIT 7**

**EMPLOYMENT : GROWTH INFORMALISATION AND OTHER ISSUES**
Key Points

* Work plays an important role in our lives, as individuals and as members of society.

* A worker is an individual, who is involved in some productive activity, to earn a living.

* An economic activity refers to the activity performed by people to earn the living. The main three types of economic activities are consumption, production and distribution.

* Production activity refers to all those activities which are undertaken to produce goods and services for generation of income.

* Labour force: All persons, who are working (have a job) and those who are not working but able to work and willing to work at the existing wage rate constitute labour force.

* Labour Force: Persons working + persons seeking and/or available for work.

* Workforce: The number of persons, who are actually employed at a particular time are known as workforce. It includes all those persons who are actually engaged in productive activities. This includes persons between the age group of 15-60 years.

* Labour supply: It refers to amount of labour that people are willing to offer corresponding to a particular wage rate.

* About two-fifth of the total population in the country is engaged in various economic activities.

* Men, particularly rural men, form the major section of workforce in India.

* Majority of workers in India are self-employed casual wage labourers and regular salaried employees together account for less than half the proportion of India’s workforce.

* About three-fifth of India’s workforce depends on agriculture and other allied activities as the major source of livelihood.

* Jobless Growth: It is defined as a situation where GDP grows faster than the employment opportunities resulting in unemployment.

* Casualisation and Informalisation of employment. Casualisation refers to a situation when the percentage of casually hired workers in the total workforce tends to rise over time.

Informalisation: refers to a situation when people tend to find employment more in informal sector of the economy, and less in formal sector of the economy.
Employment : Growth Informalisation and other issues

Unemployment : It is a situations where a person is ready and willing to work at the prevailing wage -rate but doesn’t get work.

Unemployment Rate : It is calculated as percentage of labour force who are unemployed, not as a percentage of total population.

(Formal or organized sector, informal or unorganised sector)

**Causes of unemployment**

* Slow rate of economic growth
* Population explosion
* Underdeveloped agriculture
* Defective educational system
* Slow growth of Industry
* Decline of collage and small industry
* Faulty planning
* Inadequate employment planning.
* Low capital formation.

Remedial measures for unemployment.

* Accelerating growth rate of GDP
* Control of population growth
* Development to small scale enterprises.
* Encouragement in infrastructure.
* Special employment programmes.
* Rapid industrialisation.

Special programmes to fight poverty and unemployment

* Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)
Its a significant recent attempt of govt., offering guaranteed employment to those in the rural areas who are below poverty line.

**ONE MARK QUESTIONS**

1. Who is worker?
   
   Ans: A worker is an individual who is doing some productive employment to earn a living.

2. Define GDP
   
   Ans: Sum total of the goods and services produced in the economy during a year is called GDP.

3. What is an economic activity?
   
   Ans: All activities which contribute to gross national product through production of goods and services are called economic activities.

4. Define self employed workers?
   
   Ans: Self employed workers are those who work in their own business or profession and get profit as their reward.

5. Define participation ratio.
   
   Ans: Participation ratio is defined as the percentage of total population which is actually participating in productive activity. It is also called workers population ratio.

6. Give three sources that collect data on unemployment.
   
   Ans: (a) Reports of census of India.
   
   (b) National sample survey organisation reports of employment and unemployment situation and
   
   (c) Directorate general of employment and training date of registration with employment exchange.

7. Define job less growth.
   
   Ans: Jobless growth is defined as a situation in which there is an overall acceleration in the growth role of GDP in the economy which is not accompanied by a commensurate expansion in employment opportunities.

8. Define casualisation.
Ans: Casualisation is defined as a situation in which percentage of casually hired workers in the workforce tends to grow overtime.

9. Are the following workers - a beggar, a thief, a smuggler, a gambler? Why?
Ans: No, they are not workers, as they are not doing any productive work.

10. What is informalization of workforce?
Ans: Informalisation of work force refers to a situation whereby the proportion of workforce in the informal sector to total workforce increases.

11. Why is self-employed workforce higher in rural areas?
Ans: In case of rural areas, self employed workers are greater as majority of rural people are engaged in farming on their own plots of land.

12. Name the two kinds of urban unemployment.
(i) Industrial unemployment
(ii) Educated unemployment

13. Give the meaning of disguised unemployment.
Ans: Disguised unemployment refers to a state in which more people are engaged in work than are really needed.

14. Who are included in labour force?
Ans: All persons, who are working (have a job) and thought not working, are seeking and are available for work, are deemed to be in the labour force.

15. Give the meaning of workforce?
Ans: The number of persons, who are actually employed at a particular time are known as workforce.

Ans: Worker population ratio is the percentage of total population engaged in work.

17. Who is casual wage labourer?
Ans: Workers who are not hired by their employers on a regular or permanent basis (i.e. do not have job security) and do not get social security benefits, are formed as casual wage labour.
18. How will you know whether a worker is worker in the informal sector?

Ans: It is an unorganised sector of an economy which includes all those private sector enterprises which employ less than 10 workers.

19. Why are regular salaried employees more in urban areas than in rural areas.

Ans: Regular salaried employees are more in urban areas as considerable section of urban people are able to study in various education institutions and if enables them to look for an appropriate job to suit their qualification and skill.

20. Why do we differentiate between economic activity and production activity?

Ans: We differentiate to calculate the number of workers. People engaged only in production economic activities are to be included in the category of workness.

SHORT ANSWER QUESTIONS (03-04 MARKS)

1. What is the difference between labour force and work force?

Ans: All persons, who are working (have a job) and thought not working, are seeking and are available for work, are deemed to be in the labour force.

Labour Force: Persons working + persons seeking and / or available for work.

The number of persons, who are actually employed at a particular time are known as workforce.

It includes all those persons who are actually engaged in productive activities. This includes persons between age group of 15-60 years.

2. How does the government generate employment?

Ans: Government generate employment through different programme and policies. Special programmes to fight poverty and unemployment Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). Its a significant recent attempt of govt., offering guaranteed employment to those in the rural areas who are below poverty line.

3. Analyse the recent trends in sectoral distribution of workforce in India.

4. Discuss the two types of rural unemployment.

5. Discuss the two main forms of wage employment.


8. Suggest general measures to control unemployment.

9. What are the adverse effects of unemployment.

10. Write a short note on informal sector. What are the problems being faced by the workers of informal sector?

11. Discuss the three concepts of unemployment used by national sample survey organisation.

12. Compared to urban women, more rural women are found working. Why?

LONG ANSWER QUESTIONS (06 MARKS)

1. What are the causes of unemployment?

Ans: It is a situation where a person is ready and willing to work at the prevailing wage rate but doesn’t get work.

These are some **Causes of unemployment**

* Slow rate of economic growth
* Population explosion
* Underdeveloped agriculture
* Defective educational system
* Slow growth of Industry
* Decline of college and small industry.
* Faulty planning
* Inadequate employment planning.
* Low capital formation.

2. What role does the government play in generating employment opportunities.

3. What are the various types of unemployment?

4. Explain information of workforce.

5. Explain occupational structure of workforce.
6. What do you mean by organised sector? Discuss the reasons for fall in employment in the organised sector.

7. Discuss the various remedial measures, which are needed to solve the problem of unemployment in India.

8. What do you mean by casualisation of workforce? Discuss the concept with relevant facts.

9. Discuss the distribution of employment in different sectors of economy.

10. Discuss the concept of frictional and structural unemployment.

11. Why are casual workers more in rural areas than in urban areas? How can the problem of rural unemployment be solved?

INFLATION: PROBLEM AND POLICIES

Key Points

By inflation in ordinary language, we mean a process of rising prices. Inflation is a situation of persistent and appreciable rise in prices, leading to fall in purchasing power of money. A chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index over time.

Demand Pull Inflation: Demand-pull inflation arises when there is an excess of demand for goods over their supply. When is a persistent increase in demand and supply does not increase proportionately, then price tends to rise. Causes of demand pull inflation are:

* Increase in public expenditure.
* Increase in investment
* Increase in money supply
* Growth in black money
* Increase in population

Cost push inflation: Cost push inflation occurs when rise in price is due to rise in the cost of production. In this type of inflation, demand factor plays an important and supply factor plays an important role. Once, this type of inflation sets in one industry, it spreads to all other industries of an economy.

Main causes of cost-push inflation are:

* Higher wage rate
* Higher profit margin
* Higher taxes
* Fall in the availability of basis inputs.
* Administered higher prices of inputs.

Causes of Inflation

1. Demand factors
* Growth of population
* Rise in employment and income
* Increase in pace of urbanisation.

2. Supply factors
* Irregular agricultural supply
* Hoarding of essential goods.
* Rise in administered prices.
* Agricultural price policy
* Rising prices of imports
* Inadequate growth of industrial production.

3. Monetary and fiscal factors
* Rising levels of government expenditure.
* Deficit financing.

Effect of Inflation

Micro - on Individual
* Real income declines
* Wealth value declines
* Income redistribution causes social tensions.

Macro - On Economy
* Hoarding and black marketing.
* Speculation increases
* Nominal pay increase
* Higher tax bracket.
* Deterioration of quality of goods and standard of living.

Policy measures to control inflation

Monetary measures
* A check on the supply of money
* Increases in rate of interest
* Decrease in the supply of credit
* By Raising cash reserve ratio and statutory liquidity ratio and by Open market operations

Fiscal Measures
* A check on public expenditure
* Increase in taxes
* Public borrowing

Physical or non monetary measures
* Increasing output or increasing inputs
* Controlling money wages
* Price control and rationing.
* Check on hoarding.

01 MARK QUESTIONS

1. Define inflation

Ans: Inflation is a situation of persistent and appreciable rise in prices, leading to fall in purchasing power of money.

2. Define deflation

Ans: Deflation is a situation where prices are falling and value of money...
3. Define stagflation

Ans: Stagflation means stagnation plus inflation. It is a situation where stagnation co­ exists with inflation in an economy.

4. Which demand factors cause inflation?

Ans: Growth in population, rise in employment and increasing pace of urbanisation cause inflation.

5. Which supply factors cause inflation?

Ans: Hoarding of essential goods, irregular agricultural supply, rise in administered prices and inadequate growth of industrial production are some of the supply factors which cause inflation.

6. What is demand pull inflation?

Ans: Demand pull inflation arises when there is an excess of demand for goods over their supply.

7. What is cost push inflation?

Ans: Cost push inflation occurs when rise in prices is due to rise in the cost of production.

8. What is inflation rate?

Ans: Inflation rate is a chief measure of price inflation. It is annualized percentage change in a general price index over time.

9. Who controls and monitor monetary policy India?

Ans: The Reserve Bank of India controls and monitors monetary policy in India.

10. What is fiscal policy?

Ans: Fiscal policy is the expenditure and revenue policy of the government.

SHORT ANSWER QUESTIONS (03-04 MARKS)

1. Explain demand pull inflation.

Ans: Demand -pull inflation arises when there is an excess of demand for goods over their supply. When is a persistent increase in demand and supply does not increase proportionately, then price tends to rise. Causes of demand pull inflation are

* Increase in public expenditure.
* Increase in investment
* Increase in money supply
* Growth in black money
* Increase in population

2. Explain monetary measures to control inflation.

Ans: These are some monetary measures
* A check on the supply of money
* Increases in rate of interest
* Decrease in the supply of credit
* By raising cash reserve ratio and statutory liquidity ratio and by open market operations

3. Explain fiscal measures to control inflation.

4. What are the various types of inflation?

5. What are supply factors which cause inflation?

6. What are the major impact of inflation on the economy?

LONG ANSWER QUESTIONS (6 MARKS)

1. What is demand pull inflation? What are its causes?

Ans: Demand pull inflation arises when there is an excess of demand for goods over their supply. When is a persistent increase in demand and supply does not increase proportionately, then price tends to rise. Causes of demand pull inflation are
* Increase in public expenditure.
* Increase in investment
* Increase in money supply
* Growth in black money
* Increase in population
2. What is cost push inflation. What are its causes?

3. What have been general causes of inflation in India?

4. What are the measures taken by the government to tackle inflation?

5. What is the impact of inflation on the economy?

**INFRASTRUCTURE**

**Key Points**

* Infrastructure refers to all such activities, services and facilities, which are needed to provide different kinds of services in an economy.

* It contributes to economic development of a country both by raising the productivity of factors of production and improving the quality of life of its people.

* It provides supporting services in the main areas of industrial and agricultural production, domestic and foreign trade and commerce.

Importance of infrastructure

* Raises productivity

* Provides employment

* Induces foreign investments

* Raises ability to work

* Facilitates outsourcing

* Raises economic development

* Raises size of the market

The state of infrastructure in India

* India invests only 5 percent of its GDP on infrastructure, which is far below that of China and Indonesia.

* With government, private sector in joint partnership with the public sector is also playing on very important role in the infrastructure development.

* India needs to develop its infrastructure specially in the area of water, basic amenities and sanitation.
Energy:

Energy is an important input for most of the production processes and consumption activities.

Sources of Energy

* Commercial sources are coal, petroleum and electricity.

* Non-commercial sources of energy are firewood, agricultural waste, and dried dung.

Conventional sources of energy include both commercial and non-commercial sources of energy, for example, national gas, coal, petroleum, etc.

Non-conventional sources of energy are renewable resources of energy like biomass, solar energy, wind energy, tidal energy, etc.

Consumption pattern of commercial energy

* At present, commercial energy consumption is 65 percent of total energy consumed in India.

* Coal has the largest share of 55 percent, followed by oil at 31 percent, natural gas at 11 percent, and hydro energy at 3 percent.

* Non-commercial energy sources account for over 30 percent of the total energy consumption.

Power/electricity: The most visible form of energy, which is often identified with progress in modern civilization is power/electricity.

Different Sources of Energy

Some challenges in the power sector

* Insufficient installed capacity

* Under utilization of capacity

* Losses incurred by SEBS

* Uncertain role of private sector

* Public unrest

* Shortage of raw materials

* Transmission and distribution losses.

* Operational inefficiency
Measures to meet challenges facing the power sector.

* Reduce transmission and distribution losses.
* Improve plant load factor
* Promote the use of CFLs to conserve energy
* Encourage private sector participation
* Hydel and wind energy sources
* National Grid
* Biogas generation programmes.
* Atomic energy

Health: Health is not only absence of disease but also the ability to realize one’s potential. It is a yardstick of one’s well being. Health is the holistic process related to the overall growth and development of the nation.

State of health infrastructure:

* There has been significant expansion in physical provision of health services and improvements in health indicators since independence.
* Public health system and facilities are not sufficient for bulk of the population.
* There is a wide gap between rural urban areas and between poor and rich in utilizing health care facilities.
* Women’s health across the country has become a matter of great concern with reports of increasing cases of female foeticide and mortality.

* Regulated private sector health services can improve. The situation and at the same time, NGOs and community participation are very important in providing health care facilities and reading health awareness.

* Indian system of medicine (ISDM) AYUSH (Ayurveda, yoga and naturopathy, unani, siddha, homoeopathy) needs to be explored.

01 MARK QUESTIONS.

1. What is the meaning of non-conventional sources of energy?
Ans: Non conventional sources of energy are renewable resources of energy like biomass, solar energy, wind energy, tidal energy etc.

2. What do you mean by transmission and distribution losses?
Ans: Transmission and distribution losses refer to the losses which occur at the time of transmission and distribution of power because of technical reasons, pilferage or theft.

3. What are the indicators of health status of a country.
Ans: The health status is normally measured in terms of life expectancy at birth, infant mortality rate, birth rate, death rate, along with the incidence of communicable and non-communicable diseases.

4. Mention one advantage of infrastructure.
Ans: Infrastructure increases the productivity of the factors of production.

5. What is global burden of disease?
Ans: Global burden of disease (GBD) is an indicator used by experts to measure the number of people dying prematurely due to a particular disease as well as the number of years spent by them in a state of disability owing to the disease.

6. Name the six systems of Indian medicine.
Ans: The six systems of Indian medicine are Ayurveda, yoga, Unani, Siddha, Naturopathy and homeopathy.

7. What is morbidity?
Ans: Morbidity means proneness to fall ill.

8. What does plant load factor measure?
Ans: Plant load factor measures the operational efficiency of thermal power plants.

9. Why do state electricity boards suffer losses?
Ans: State electricity boards suffer losses due to transmission and distribution losses, theft of electricity, wrong pricing and other inefficiencies.

10. What do you mean by infant mortality rate?
Ans: Infant mortality rate refers to number of deaths of infants before reaching the age of one per 1000 live births during that year.

11. What are the three basic sources of generating power?
Ans: Coal, oil and water are three basic sources of generation of power.

12. What do you mean by economic infrastructure.

Ans: Economic infrastructure directly supports the economic system. It helps the economic system from inside.

13. Name the state lagging behind in health care system?

Ans: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh.

14. Why investors are reluctant to invest in tidal energy projects?

Ans: Tidal energy has high capital cost and low running cost. As a result, a tidal power scheme may not produce returns for years. Thus, investors are reluctant to invest in such projects.

15. What types of fuels are used by rural women in India?

Ans: Rural women are still using bio-fuels such as crop residues, dung and fuel wood to meet their energy requirement.

16. How much percentage of GDP does India invest on infrastructure?

Ans: 5%

SHORT ANSWER QUESTION (3-4 MARKS)

1. What do you mean by morbidity? What are the factors affecting it?

Ans: Morbidity means proneness to fall ill.

These are some factors affecting

Unequal distribution of health services.

Poor sanitation level.

Lack of awareness.

2. Differentiate between commercial and non-commercial sources of energy.

Ans: Commercial sources are coal, petroleum and electricity.

Consumption pattern of commercial energy At present, commercial energy consumption is 65 percent of total energy consumed in India.

Coal has the largest share of 55 percent, followed by oil at 31 percent and hydro energy at 3 percent.
Non-commercial energy sources account for over 30 percent of the total energy consumption.

Power/electricity: The most visible form of energy, which is often identified with progress in modern civilization is power/electricity.

3. Explain the two categories, into which infrastructure is divided how are both interdependent?

4. How do infrastructure facilities boost production?

5. What are the three basic sources of generating power? Explain.

6. Write a short note on the alternative systems of health care in India?

7. What do you mean by primary and secondary sources of energy?

8. How does infrastructure contribute to the economic development of the economy?

9. How has the consumption pattern of energy changed over the year?

10. How can we increase the effectiveness of healthcare programme?

LONG ANSWER QUESTIONS (06 MARKS)

1. What problems are being faced by power sector in India?
   Ans: Some challenges in the power sector in India
   * Insufficient installed capacity
   * Under utilization of capacity
   * Losses incurred by SEBS
   * Uncertain role of private sector
   * Public unrest
   * Shortage of raw materials
   * Transmission and distribution losses.
   * Operational inefficiency

2. How does infrastructure play an important role in the social and economic development of our economy?
3. What is the three-tier system of health infrastructure in India?

4. What are the measures taken to cope up with challenges facing the health sector?

5. Solar energy, wind power and power produced from tides are going to be future sources of energy. What are their comparative merits and demerits?

6. How can we increase the effectiveness of health care programmes?

7. Discuss the reforms which have been initiated recently to meet the energy crisis in India?

8. What are the main characteristics of health of the people of our country?


10. What is the contribution of NGOs in health care in India?

ENVIRONMENT AND SUSTAINABLE ECONOMIC DEVELOPMENT

Key Points

- Environment is defined as the total planetary inheritance and the totality of all resources. It includes all the biotic and abiotic elements that influence each other.

- All living elements - the birds, animals and plants, forests, fisheries etc are biotic elements.

- A biotic element s of the environment include non-living elements like air, water, land, rocks and sunlight etc.

- Functions of the Environment:
  
  i) Environment supplies resources (both renewable and nonrenewable resources) for production.

  ii) Environment assimilates waste.

  iii) Environment sustains life.

  iv) Environment enhances quality of life.

- The environment is able to perform these functions without any interference on these functions is within its carrying capacity.
- Carrying capacity implies two things:
  i) Resource extraction should remain below the rate of resource regeneration.
  ii) Generation of wastes should remain within the absorption capacity of the environment.

If these two conditions are not fulfilled, then environmental crises occur.

Absoorptive capacity of the environment means the ability of the environment to absorb degradation.

- The various reasons for environmental crisis are as under:
  i) Population explosion and advent of industrial revolution.
  ii) The intensive and extensive extraction of both renewable and nonrenewable resources.
  iii) The affluent consumption and production standards of developed countries.

- Renewable resources are those which can be used without the possibility of the resource becoming depleted or exhausted. That is, a continuous supply of resource remains available for e.g. trees in forest and the fishes in the oceans.

- Non renewable resources are those which get exhausted with extraction and use. For e.g. fossil fuel.

- Two basic problems related to environment are:
  i) Problem of pollution.
  ii) Problem of excessive exploitation of natural resources, or degradation of natural resources.

- Pollution is contamination of useful things such as air, water, land etc. with undesirable or harmful materials like foul gases, smoke, poisonous chemicals, etc.

- The major forms of pollution are as follows:
  i) Air pollution
  ii) Water Pollution
  iii) Noise Pollution
  iv) Land Pollution

- Global warming is a gradual increase in the average temperature of the earth’s lower atmosphere and oceans.
- Global warming is caused by man-made increase in carbon dioxide (CO2) and other greenhouse gases through the burning of fossil fuels and deforestation.

- Some of the long term results of global warming are as follows:
  i) Melting of polar ice with a resulting rise in sea level and coastal flooding.
  ii) Extinction of species as ecological niches disappear
  iii) more frequent tropical storms and ;
  iv) An increased incidence of tropical diseases. - Ozone depletion refers to reduction in the amount of Ozone (a protective layer) in the stratosphere.

- The problem of Ozone depletion is caused by high levels of CFC used as cooling substances in air conditioner s and refrigerator s.

- As a result of depletion of the ozone layer, more ultra violet (UV) radiation comes to earth and causes damage to living organism.

- The threat to India’s environment poses a dichotomy - threat of poverty
  - induced environmental degradation and, at the same time, threat of pollution from affluence and a rapidly growing industrial sector.

- Air Pollution, water contamination, soil erosion, deforestation and wildlife extinction are some of the most pressing environmental concerns of India.

- The priority issues identified in India are
  i) Land degradation
  ii) Biodiversity loss
  iii) Air pollution with special reference to vehicular pollution in urban cities.
  iv) Management of fresh water.
  v) Solid waste management.

- Land degradation refers to a decline in the overall quality of soil, water or vegetation condition, commonly caused by human activities.

- Some of the factors responsible for land degradation are
  i) loss of vegetation occurring due to deforestation.
  ii) Forest fires and over grazing.
iii) Improper crop rotation.

iv) Encroachment into forest lands.

v) Shifting cultivation.

vi) Indiscriminate use of agro-chemicals such as fertilizers and pesticides.

vii) Improper planning and management of irrigation systems.

viii) Extraction of ground water in excess of the recharge capacity.

ix) Poverty of the agriculture-dependent people.

x) No adoption of adequate soil conservation measures.

- Chipko and Appiko movements are related to protect forests.

- In order to address two major environmental concerns in India, viz. water and air pollution, the government set up the central pollution control board (CPCB) in 1974. Board investigate, collect and disseminate information relating to water, air and pollution, lay down standards of sewage/trade effluent and emissions.

- India’s rapid economic development has made us aware of two realities:

i) Economic development has lifted millions out from poverty.

ii) Economic development has been accompanied by accelerated depletion of natural resources and rapid deterioration in environment quality.

- Sustainable development is that process of development which meets the needs of present generation without reducing the ability of future generation to meet their own needs.

- Main features of sustainable development are as under:

i) Sustained rise in Real per Capita Income and Economic welfare.

ii) Rational use of natural resources.

iii) No reduction in the ability of the future generation to fulfill their own needs.

iv) No increase in pollution.

- To achieve sustainable development, the following needs to be done:

i) Limiting the human population
ii) Technological progress should be input efficient and not input consuming.

iii) Renewable resources should be extracted on a sustainable basis, that is, the rate of extraction should not exceed rate of regeneration.

iv) For non-renewable resources rate of depletion should not exceed the rate of creation of renewable substitutes.

v) Inefficiencies arising from pollution should be corrected.

- Strategies for Sustainable Development.

i) Use of non-conventional sources of energy.

ii) Use of cleaner fuels: LPG, Gobar gas in rural areas and CNG in Urban areas.

iii) Use of Solar energy and wind power.

iv) Shift to organic farming

v) Recycle the wastes

vi) Public means of transport.

vii) Traditional knowledge and practices.

viii) Establishment of Mini-Hydel plants.

VERY SHORT ANSWER TYPE QUESTIONS (1 mark each)

1. Define environment.

   Ans: Environment is defined as the total planetary inheritance and the totality of all resources.

2. Give two examples of biotic elements of environment.

   Ans: Animal and plants.

3. What do you mean by carrying capacity of environment?

   Ans: Carrying capacity of the environment implies that the resource extraction is not above the rate of regeneration of the resources and the wastes generated are within the absorption capacity of environment.

4. Give the meaning of renewable resources.

   Ans: Renewable resources are those which can be used without the exhausted, such as trees, fishes etc.
5. What do you mean by non-renewable resources?

Ans: Non-renewable resources refer to those resources which get exhausted with extraction and use such as fossil fuel, coal etc.

6. What happens when the rate of resource extraction exceeds that of their regeneration?

Ans: Then environment fails to perform its vital function of life sustenance and it leads to the situation of environmental crisis.

7. Give the meaning of absorptive capacity of the environment.

Ans: Absorptive capacity of the environment means the ability of the environment to absorb degradation.

8. Why have some resources become extinct?

Ans: Some resources have become extinct because their extraction has been above the rate of regeneration.

9. What is global warming?

Ans: Global warming is a gradual increase in the average temperature of the earth’s lower atmosphere and ocean.

10. Give two examples of overuse of resources.

Ans: i) Excessive exploitation of fossil fuel.

ii) Excessive tree felling.

11. Define sustainable development.

Ans: Sustainable development is that process of development which meets the needs of present generation without reducing the ability of future generation to meet their own needs.

12. Give two examples of misuse of resources.

Ans: i) Use of wood as a household fuel.

ii) Use of rivers to absorb industrial effluents.

13. State the two major environmental issues the world is facing today.

Ans: i) Depletion of natural resources

ii) Environmental degradation

14. Mention any one measure to control air pollution.
Ans: Promotion of cleaner fuel, like use of CNG, LPG

15. Give the name of two movement which aimed at protecting forests.

Ans:  
   i) Chipko Movement  
   ii) Appiko Movement.

16. State two basic problems related to environment.

Ans:  
   i) Problem of Pollution.  
   ii) Problem of excessive exploitation of natural resources.

17. State main function of central pollution control board?

Ans: Board (CPCB) investigates, collects and disseminate information relating to water, air, and long pollution, lay down standards of sewage/trade effluent and emissions.

SHORT ANSWER TYPE QUESTIONS (3/4 marks each)

1. What are the functions of the environment?

Ans: The environment performs four vital functions. They are:
   
   a. Environment supplies resources
   b. Environment assimilates waste
   c. Environment sustain life
   d. Environment provides aesthetic services

2. Identify six factors contributing to land degradation in India.

Ans: Some of the factors which are responsible for land degradation are

   a. Loss of vegetation due to deforestation
   b. Shifting cultivation
   c. Forest fires and over-grazing
   d. Improper crop rotation
   e. Non-adoption of adequate soil conservation measures.
   f. Poverty of the agriculture-dependent people
3. Explain how the opportunity costs of negative environmental impact are high.

4. Outline the steps involved in attaining sustainable development in India.

5. Is environmental crisis a recent phenomenon? If so, why?

6. Keeping in view your locality, describe any four strategies of sustainable development.

7. Define the concept of sustainable development and state its features.

LONG ANSWER TYPE QUESTIONS (6 marks each)

1. Discuss the strategy of sustainable development.

Ans: Sustainable development is that process of development which meets the needs of present generation without reducing the ability of future generation to meet their own needs.

These are the some possible strategies to achieve sustainable development in India:

   i) Use of non-conventional sources of energy.
   ii) Use of cleaner fuels: LPG, Gobar gas in rural areas and CNG in Urban areas.
   iii) Use of Solar energy and wind power.
   iv) Shift to organic farming
   v) Recycle the wastes
   vi) Public means of transport.
   vii) Traditional knowledge and practice s.
   viii) Establishment of Mini-Hydel plants.

2. Explain how India’s environmental problems are both poverty induced as well as the consequences of affluence in living standards.

3. What is meant by sustainable economic development? Explain its main features.


5. Explain the supply - demand reversal of environmental resources.
TIPS FOR ANSWERING THE OTBA QUESTIONS

- Read the text thoroughly at least twice before the commencement of the SEE.
- Highlight the important concepts of the text.
- Try to analyse the situation from own point of view.
- Find the causes & effects of the situations if given in the text & establish cause & effect relationship.
- Study the pictures/diagrams/tables carefully, understand them & try to interpret the information given in them.
- Learn to critically appraise the situations or concepts depicted in the text.

Comparative development experience of India with its neighbours.

KEY POINTS:

- Need for a comparative study
- Similarities in developmental strategies of India, China and Pakistan
- Developmental strategies pursued by China and Pakistan
- Comparison of some of the developmental indicators of India, China and Pakistan
- Appraisal of the developmental strategies

Need for a comparative study

It is very important to know the developmental processes pursued by the neighbouring countries in today’s globalised world because it helps to analyse and understand their own strength and weakness as compared to their neighbours.

Similarities in developmental strategies of India, China and Pakistan

- All the three nations started towards their developmental path at the same time.

India, and Pakistan became independent in 1947, People’s Republic of China was established in 1949.

- All the three nations started planning their developmental strategies in similar ways and adopted five year plans.

India announced its first five year plan for 1951-56

Pakistan announced its first five year plan called Medium Term Plan in 1956

China announced its first five year plan in 1953

- All the three nations emphasised on creating a large public sector.
India and Pakistan tried to create large public sector and raise public expenditure on social development.

China brought all the critical sectors, enterprises and lands under government control.

**Developmental strategies pursued by China**

**Great Leap Forward (GLF)**

Great Leap Forward campaign was initiated in 1958

It aimed at industrialising the country on a massive scale

**Commune system**

Collective cultivation of land was done that covered almost all the farm population.

**Great Proletarian Cultural Revolution (1966-76)**

Students and professionals were sent to work and learn from countryside.

**Reforms in 1978**

Initially reforms were introduced in agriculture, foreign trade and investment sector

Later reforms were introduced in industrial sector

**Developmental strategies pursued by Pakistan**

**Mixed economy**

Co-existence of public and private sectors was followed

**Import substitution and industrialisation**

Tariff protection for consumer goods manufacturing was given

Direct import control on importing competing goods was made

**Green revolution**

To increase food grain production

In 1970s nationalisation of capital goods industries and in 1980s de nationalisation and privatisation was encouraged.

Reforms were introduced in 1988.
Comparison of some of the developmental indicators of India, China and Pakistan

Demographic indicators

Size of population: Highest in China, lowest in Pakistan
Density of population: Highest in India, lowest in China
Sex ratio: Almost the same & biased against females in all the 3 countries.
Fertility rate: Highest in Pakistan, lowest in China,
Urbanisation: Highest in China, lowest in Pakistan

GDP & sectors

Growth rate of GDP per annum was highest in China, followed by Pakistan & India during 1980-90
Growth rate of GDP per annum remained the highest in China, but followed by India & Pakistan during 2000-2010
In India & China, the service sector & in Pakistan, the industrial sector contributes most to the GDP.
Proportion of workforce working in agricultural sector is more in India & Pakistan but proportion of workforce working in service sector is more in China.

Human development

HDI includes both quantitative & qualitative aspects like GDP per capita, proportion of population below poverty line, different health & sanitation indicators, literacy etc.
China precedes in the rank of HDI being at 91st position, followed by India (135) & Pakistan (146)

Questions for practice
1. No doubt, one child norm in China has been successful in controlling the growth rate of population in that country but is not free from its negative implications. Discuss.

Ans: - Increase in the proportion of old people as compared to youth mass.

Uneven distribution of workforce.

More burden on the working population

Fear of huge decline in population

2. Even if India, China and Pakistan started their developmental strategies during the same time period, yet they have ended up with a huge difference of GDP growth rate & Human development. Why?

Ans: China adopted the reforms in 1978 without external interference and pressure.

Proper implementation of the programme and policies.

3. Critically appraise the developmental strategies adopted by China.

Ans: GLF lead to industrialisation of the nation but hamper the development of other areas and created problems with the withdrawal of support from Russia.

One Child Norm helped in combating population but led to uneven distribution of workforce

Commune system though encouraged collective forming yet Production did not increase for which it was divided into small plots in later stage.

However, the reform introduced in phases in agriculture, foreign trade and investment sector helped in achieving higher growth rate.

4. Compare & contrast the developmental policies adopted by India & Pakistan.

Tips for Students of Class XI

I will
1. Attend the School regularly
2. Maintain utmost discipline in the Class room
3. Read each and every concept in each chapter of the Text Book thoroughly (NCERT Publications)
4. Note down the concepts taught by the teacher in the Class Room
5. Follow the instructions of the teacher
6. Not miss any class
7. Follow the reference book and practice materials as prescribed by the teacher
8. Manage my time properly
9. Clear my doubts from the teacher
10. Prepare a short note of each chapter in a compact form and carry it with me every time and go through it whenever time permits
11. Solve last 5 years question papers
12. Practice graphs and diagrams regularly
13. Solve my personal problems with the help of my parents and teachers
14. Attend the tests conducted by the teacher
15. Submit all the assignments given by the teacher in time
16. Take sufficient nutritious food and sufficient water
17. Free myself from mental tension and stress
18. Make a habit of completing the portions of each chapter as and when taught in the class room
19. Go through the concepts from the reference book on every day at home which are taught by the teacher in the class
20. Clarify my doubt from the teacher during the class room teaching if arises during the teaching of the teacher
21. Make a copy of mathematical and statistical formula and go through it whenever time permits
22. Develop the habit of writing
23. Read the question paper carefully before answering in the examination
24. Understand the concept instead of simply completing the reading
25. Write the answer of those questions first which seems to be easier in the examination (not necessarily in sequence)

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KENDRIYA VIDYALAYA SANGATHAN
HALF YEARLY EXAMINATION
SUB- ECONOMICS CLASS - XI

BLUE PRINT

<table>
<thead>
<tr>
<th>UNITS</th>
<th>1 MARK MCQ</th>
<th>3 MARKS</th>
<th>4 MARKS</th>
<th>6 MARKS</th>
<th>OTBA 5 Mark</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part :</td>
<td>STATISTICS FOR ECONOMICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Part A

<table>
<thead>
<tr>
<th></th>
<th>Introduction</th>
<th>1</th>
<th>1</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Collection, Organisation and Presentation of Data</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>Statistical Tools and Interpretation</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>21</td>
</tr>
</tbody>
</table>

## Part B: Indian Economic Development

### (i) Development Experience (1947-1990)

|   | 2 | 3 | - | 2 | - | 23 |

### (ii) Economic Reforms since 1991

|   | 2 | 2 | 2 | 1 | - | 22 |

**Total**

8x1 = 8 10x3 = 30 4x4 = 16 6x6 = 36 90

## Part C: Project Work

To be assigned and evaluated at the Vidyalaya Level

10

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**KENDRIYA VIDYALAYA SANGATHAN**
HALF-YEARLY EXAMINATION, 2015-16 (SET –I)

Class: XI
Subject: Economics

Maximum Marks: 90
Time Allowed: 3 Hours

General instructions:

(i) All questions in both the sections are compulsory.
(ii) Marks for questions are indicated against each.
(iii) Questions No. 1 – 4 and 15-18 are Multiple Choice questions carrying 1 mark each. One correct option to be chosen as the answer from the 4 options.
(iv) Questions No. 5 – 9 and 19-23 are short-answer questions carrying 3 marks each. Answers to them should normally not exceed 60 words each.
(v) Questions No. 10 – 11 and 24-25 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.
(vi) Questions No. 12 – 14 and 26-28 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.
(vii) Questions marked star (*) are value-based questions.
(viii) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION: A

1. Which average is affected most by the presence of extreme items ?
   (1)
   (a) Mean (b) Median
   (c) Mode (d) geometric mean

2. In case of open ended classes, an appropriate measure of dispersion is to be used is
   (1)
   (a) Range (b) Quartile Deviation
   (c) Mean Deviation (d) Standard Deviation

3. The frequency distribution of two variable is known as ?
   (1)
   (a) Univariate distribution (b) Bivariate distribution
   (c) Multivariate distribution (d) None

4. Sampling errors are present only in
   (1)
   (a) Census Survey (b) Sample Survey
   (c) Both Census and Sample Survey (d) All of these.

5. Briefly explain any three limitations of statistics in economics.
   (3)
6. “Sampling is necessity under certain conditions”. Explain.
   (3)

7. Explain the exclusive and inclusive methods used in the classification of data.
   (3)

8. Find the median age of the students from the following data.
   (3)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>08</td>
<td>30</td>
<td>40</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

9. What are the qualities of a Good Questionnaire
   (3)

   OR

   What are the objective of classification

10. Compute mode from the following data
    (4)

<table>
<thead>
<tr>
<th>Daily income</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of workers</td>
<td>7</td>
<td>8</td>
<td>12</td>
<td>15</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

   OR

   Explain any two merits and demerits each of standard deviation and mean deviation

11. Distinguish between sampling error and non-sampling error.
    (4)

12. Draw a “Histogram and a frequency polygon from given data.”
    (6)

<table>
<thead>
<tr>
<th>X</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
</table>
OR
Define a statistical table. Explain its various parts through a specimen table

13. Calculate mean deviation from median from the following table (6)

<table>
<thead>
<tr>
<th>Age group</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of students</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

14. Define Standard Deviation. What are the properties of standard deviation Explain 6

SECTION: B
15. When were railways introduced in India? (1)
   (a) 1850 (b) 1870 (c) 1920 (d) 1951

16. What was growth rate at the time introducing New Economic Policy 1991? (1)
   (a) 3.5 (b) 4.5 (c) 5.5 (d) 6.5

17. What was the infant mortality rate during the time of British rule? (1)
   (a) 218 (b) 219 (c) 215 (d) 220

18. Which year Economic Reforms was started in India? (1)
   (a) 1921 (b) 1991 (c) 1959 (d) 1995

19.*Agriculture sector appears to be adversely affected by the reform process in India” Explain(3)
20. What is Liberalisation Policy? How could it help India in promoting economic development? (3)

21. Give an account of the occupational structure of India during colonial period. Were there regional balances in occupational structure? Give proof in support of your answer. (3)

22. Trace the growth of industrial sector during the period from 1950-51 to 1990-91. What steps were taken by the policy makers of independent India to develop industrial sector? (3)

23. What are the major factors responsible for the high growth of the service sector after economic reforms in India? (3)

**OR**

Briefly explain any three methods of disinvestment.


**OR**

Discuss economic reforms in India light of social justice and welfare.

25. Explain the need and type of land reforms implemented in the agriculture sector. (4)

26. What were the main intentions of British rulers behind the introduction of railways in India? What were the favourable impacts of the development of railways in colonial period on the Indian Economy? (6)

27. * Those public sector undertakings which are making profits should be privatized. Do you agree with this view? Why? (6)


**OR**

“What is Green Revolution? Why was it implemented and how did it benefit the farmers? Explain in brief.”

-------------------x-------------------
KENDRIYA VIDYALAYA SANGATHAN
HALF-YEARLY EXAMINATION, 2015-16 (SET - II)

Class: XI  Maximum Marks: 90
Subject: Economics  Time Allowed: 3 Hours

General instructions:

(ix) All questions in both the sections are compulsory.

(x) Marks for questions are indicated against each.

(xi) Questions No. 1 – 4 and 15-18 are Multiple Choice questions carrying 1 mark each. One correct option to be chosen as the answer from the 4 options.

(xii) Questions No. 5 – 9 and 19-23 are short-answer questions carrying 3 marks each. Answers to them should normally not exceed 60 words each.

(xiii) Questions No. 10 – 11 and 24-25 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.

(xiv) Questions No. 12 – 14 and 26-28 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.

(xv) Questions marked star (*) are value-based questions.

(xvi) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION: A

1. Which measure of central tendency can be located graphically with the help of Histogram ?

   (1)

   (b) Mean
   © Mode
   (d) None of the above
2. The mean marks of 60 students in section A are 40 and mean marks of 40 students in section B are 35. Find combined mean?
   
   (1)
   
   (a) 38
   (b) 28
   (c) 42
   (d) 56

3. Which of the followings is not the main part of a statistical table?
   
   (1)
   (a) Research
   (b) Table No
   (c) Body of the table
   (d) Stubs

4. Which organization conducts periodical survey on Demography?
   
   (1)
   (a) NSSO
   (b) Census
   (c) Sample Survey
   (d) CSO.

5. Explain any three functions of statistics in economics.
   
   (3)

   
   (3)

7. Write any five principles of drafting questionnaire.
   
   (3)

8. Find the mean deviation from median age of the students from the following data.
   
   (3)
   
<table>
<thead>
<tr>
<th>Age (years)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>15</td>
<td>11</td>
<td>13</td>
<td>20</td>
</tr>
</tbody>
</table>

9. Difference between sampling error and non-sampling error.
   
   (3)

   OR
   
   The arithmetic mean of a given set of data on expenditure was found to be Rs100. Later it was found, due to an error of omission,
are Rs5 less than true values. Calculate the mean expenditure for the corrected data.

10. Following information pertains to the daily income of given families. Calculate the arithmetic mean.

(4)

<table>
<thead>
<tr>
<th>Income (in Rupees)</th>
<th>Number of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 70</td>
<td>20</td>
</tr>
<tr>
<td>70-80</td>
<td>30</td>
</tr>
<tr>
<td>80-90</td>
<td>15</td>
</tr>
<tr>
<td>90-100</td>
<td>25</td>
</tr>
<tr>
<td>100-110</td>
<td>10</td>
</tr>
<tr>
<td>110-120</td>
<td>20</td>
</tr>
<tr>
<td>120-130</td>
<td>20</td>
</tr>
</tbody>
</table>

Or

Explain any two merits and demerits each of Range and Mean Deviation

11. Distinguish between Census method and Sampling method

(4)

12. Draw a “More than” ogive and a “Less than” ogive from the following data and locate median through it.

(6)

<table>
<thead>
<tr>
<th>X</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

OR

Calculate Median and Mode from the following data

<table>
<thead>
<tr>
<th>Income</th>
<th>100-200</th>
<th>200-300</th>
<th>300-400</th>
<th>400-500</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of persons</td>
<td>50</td>
<td>65</td>
<td>75</td>
<td>110</td>
</tr>
</tbody>
</table>

13. Calculate mean and the standard deviation from the following data.

(6)
14. Explain the advantages and disadvantages of textual presentation of data (6)

OR

Draw a Histogram of the following data

<table>
<thead>
<tr>
<th>Age in years</th>
<th>0-10</th>
<th>10-20</th>
<th>20-40</th>
<th>40-70</th>
<th>70-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of persons</td>
<td>10</td>
<td>25</td>
<td>20</td>
<td>15</td>
<td>60</td>
</tr>
</tbody>
</table>

SECTION: B

15. Which year is Suez canal was opened in India? (1)
   (a) 1881          (b) 1869
   (c) 1921          (d) 1951

16. Which of the followings is a policy measure of Economic Policy 1991? (1)
   (a) Price rise
   (b) Privatisation
   (c) Economic growth
   (d) None of these
17. When Tata Iron and Steel Company (TISCO) was incorporated in India? (1)
   (a) 1807
   (b) 1870
   © 1907
   (iv) 1970

18. What was percentage of devaluated rupee in July 1991? (1)
   (a) 10
   (b) 20
   © 30
   (d) 30

19. What are the positive and negative economic values inculcated in your mind on thinking about privatized profits making Public sector undertaking in terms of incentives? (3)

20. What is Outsourcing? How could it help India in promoting economic development? (3)

21. Give a quantitative appraisal of India’s demographic profile during the colonial period? (3)

22. What was the main reason for the development of infrastructure by the British in India?

23. What are the main reforms in the financial sector? (3)

   OR

   What are the main reforms in the foreign trade sector?


   OR

   Explain the causes that have taken place in implementing the New Economic Policy by the Indian Government.

25. “The India’s jute industry was adversely affected by the partition of India.” Prove or disprove. Explain. (4)

26. Do you think the “Zamindari system has really been abolished in India? If not, suggest measure to banish it. (6)

   OR
27. What were the main causes of India’s agricultural stagnation during the colonial period?

28. “Multinational companies outsource many services to countries like India.” Justify the statement in the context of introduction of Globalization in Indian economy. (6)
KENDRIYA VIDYALAYA SANGATHAN
HALF-YEARLY EXAMINATION, 2015-16 (SET – III)
Class: XI
Subject: Economics

Maximum Marks: 90
Time Allowed: 3 Hours

General instructions:
(xvii) All questions in both the sections are compulsory.
(xviii) Marks for questions are indicated against each.
(xix) Questions No. 1 – 4 and 15-18 are Multiple Choice questions carrying 1 mark each. One correct option to be chosen as the answer from the 4 options.
(xx) Questions No. 5 – 9 and 19-23 are short-answer questions carrying 3 marks each. Answers to them should normally not exceed 60 words each.
(xxi) Questions No. 10 – 11 and 24-25 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.
(xxii) Questions No. 12 – 14 and 26-28 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.
(xxiii) Questions marked star (*) are value-based questions.
(xxiv) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION: A

1. Which measure of central tendency can be located graphically with the help of Ogive?
   (1)
   (c) Mean
   © Mode
   (d) None of the above
2. The arithmetic mean of 10 observations in a series is 32. What will be its arithmetic mean when 4 is added with all the observations of that series?
   (1)
   (c) 8
   © 32
   (d) 36
3. Which of the followings is the main part of a statistical table?
   (1)
   (c) Table Number
   © Body of the table
   (d) Stubs
4. The method of pre-testing the questionnaire in a small group before conducting the actual survey is called…. 
   (1) (b) Pilot Survey (b) Census Survey © Sample Survey (d) All of these.

5. Briefly explain any three importances of statistics in economics. 
   (3)

   (3)

7. What is a variable? Distinguish between a discrete and a continuous variable. 
   (3)

8. Find the median age of the students from the following data. 
   (3)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>2</td>
<td>10</td>
<td>18</td>
<td>20</td>
<td>10</td>
<td>7</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

9. Write short notes on CENSUS of India. 
   (3)

   OR

   The mean mark secured by 33 students of class-XI in economics was 64. Later on it was found that the marks of four students were wrongly tabulated as 35, 23, 87 and 58 instead of 53, 32, 78 and 85. Calculate the correct mean mark secured by the student.

10. Following information pertains to the daily income of 150 families. Calculate the arithmetic mean. 
   (4)

<table>
<thead>
<tr>
<th>Income (in Rupees)</th>
<th>Number of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 75</td>
<td>150</td>
</tr>
<tr>
<td>More than 85</td>
<td>140</td>
</tr>
<tr>
<td>More than 95</td>
<td>115</td>
</tr>
<tr>
<td>More than 105</td>
<td>95</td>
</tr>
<tr>
<td>More than 115</td>
<td>70</td>
</tr>
<tr>
<td>More than 125</td>
<td>60</td>
</tr>
<tr>
<td>More than 135</td>
<td></td>
</tr>
</tbody>
</table>
11. Distinguish between primary data and secondary data. (4)

12. Draw a “More than” ogive and a “Less than” ogive from the following data and locate median through it. (6)

<table>
<thead>
<tr>
<th>X</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

13. If the arithmetic mean of the data given below is 28, find
(a) The missing frequency
(b) The median of the series
(6)

<table>
<thead>
<tr>
<th>Profit per retail shops (in Rs.)</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of retail shops</td>
<td>12</td>
<td>18</td>
<td>27</td>
<td>---</td>
<td>17</td>
<td>6</td>
</tr>
</tbody>
</table>

14. Define a statistical table. Explain its various parts through a specimen table. (6)

OR
The cost of production under different heads in respect of a firm is given below. Represent the same through a pie diagram.

<table>
<thead>
<tr>
<th>Items</th>
<th>Labour</th>
<th>Materials</th>
<th>Electricity</th>
<th>Transportation</th>
<th>Overhead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs (Rs.)</td>
<td>10</td>
<td>25</td>
<td>5</td>
<td>15</td>
<td>35</td>
</tr>
</tbody>
</table>

SECTION: B
15. What was the overall literacy rate of India during the period under colonial period? (1)
(a) 15% (b) 16%
16. When were the railways introduced in India?
   (1)
   (a) 1850    (b) 1851
   © 1852    (d) 1853

17. Who initiated the economic reforms in 1991?
   (1)
   (a) A.B. Vajpayee    (b) Dr. Manmohan Singh
   © Rajiv Gandhi    (d) Rahul Gandhi

18. What is India’s rank as foreign exchange reserve holder?
   (1)
   (a) five    (b) sixth
   © Seven    (d) Eight

19. * Why has the industrial sector performed poorly in the reform period?
   (3)

20. Differentiate between tariff and non tariff barrier in the context of India in promoting economic development? (3)

21. What are the three drawbacks of the industrial sector during colonial rule?
   (3)

22. What is sectoral composition of an economy? Is it necessary that the service sector should contribute maximum to GDP of an economy? comment
   (3)

23. Do you think outsourcing is good for India? Why are developed countries opposing it? (3)

OR

Define disinvestment. What are the objective of disinvestment

   (4)

OR

What are the challenges of the Policy of LPG?

25. Why was public sector given a leading role in Industrial development during the planning period?
   (4)
26. “The traditional handicrafts industries were ruined under the British rule. Do you agree with this view. Give reasons in support of your answer.

(6)

**OR**

Briefly explain the India’s most crucial economic challenges at the time of independence.

27. * Agriculture sector appears to be adversely affected by the reform process” justify

(6)

28. What were the main features of the economic policy prior to 1991 ?

(6)

**OR**

“Why, despite the implementation of Green Revolution, 65% of our population continued to be engaged in the agriculture sector till 1990 ?
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(i)</strong></td>
<td>Only practical method</td>
</tr>
<tr>
<td><strong>(ii)</strong></td>
<td>Testing of milk, cracker</td>
</tr>
<tr>
<td><strong>(iii)</strong></td>
<td>Population is infinite</td>
</tr>
<tr>
<td><strong>(iv)</strong></td>
<td>Less time consuming</td>
</tr>
<tr>
<td><strong>7</strong></td>
<td>Exclusive method (upper limit excluded)</td>
</tr>
<tr>
<td></td>
<td>Inclusive method (upper limit included)</td>
</tr>
<tr>
<td></td>
<td>$1 \frac{1}{2} + 1 \frac{1}{2}$</td>
</tr>
<tr>
<td><strong>8</strong></td>
<td>Table calculation</td>
</tr>
<tr>
<td></td>
<td>Median = 23</td>
</tr>
<tr>
<td></td>
<td>$1 \frac{1}{2} + 1 \frac{1}{2}$</td>
</tr>
<tr>
<td><strong>9</strong></td>
<td>Qualities of good questionnaire (any three)</td>
</tr>
<tr>
<td></td>
<td>(a) Minimum Question number</td>
</tr>
<tr>
<td></td>
<td>(b) Simple, clear</td>
</tr>
<tr>
<td></td>
<td>(c) proper order</td>
</tr>
<tr>
<td></td>
<td>(d) no calculation</td>
</tr>
<tr>
<td></td>
<td>(e) Objective question</td>
</tr>
<tr>
<td></td>
<td>$1+1+1$</td>
</tr>
<tr>
<td><strong>10</strong></td>
<td>Table calculation</td>
</tr>
<tr>
<td></td>
<td>Finding the value of Mean as 32.40</td>
</tr>
<tr>
<td></td>
<td>Finding the value of Mode as 40</td>
</tr>
<tr>
<td></td>
<td>Or</td>
</tr>
<tr>
<td></td>
<td>Merits of SD (any two point)</td>
</tr>
<tr>
<td></td>
<td>Demerits of SD (any two point)</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td>Sampling error :- Difference between sample estimate and actual value</td>
</tr>
<tr>
<td></td>
<td>Non-Sampling error: - Sampling bias, error in data, non-response errors</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td>(i) Draw Histogram</td>
</tr>
<tr>
<td></td>
<td>(ii) Find midpoint of CI</td>
</tr>
<tr>
<td></td>
<td>(iii) Joining of midpoint of CI</td>
</tr>
<tr>
<td></td>
<td>Or</td>
</tr>
<tr>
<td></td>
<td>Main part of table</td>
</tr>
<tr>
<td></td>
<td>(i) Table No</td>
</tr>
<tr>
<td></td>
<td>(ii) Title</td>
</tr>
<tr>
<td></td>
<td>(iii) Headnote</td>
</tr>
<tr>
<td></td>
<td>(iv) Caption</td>
</tr>
<tr>
<td></td>
<td>(v) Stubs</td>
</tr>
<tr>
<td></td>
<td>(vi) Body of table</td>
</tr>
<tr>
<td></td>
<td>(vii) Footnotes</td>
</tr>
<tr>
<td></td>
<td>(viii) Source</td>
</tr>
<tr>
<td></td>
<td>2+2+2</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td>Formula</td>
</tr>
<tr>
<td></td>
<td>Find mean</td>
</tr>
<tr>
<td></td>
<td>Table calculation</td>
</tr>
<tr>
<td></td>
<td>Finding the value of Mean deviation from mean</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td>Definition</td>
</tr>
<tr>
<td></td>
<td>Properties of Standard deviation (any five)</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td>(a) 1850</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td>(a) 3.5</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>17</strong></td>
<td>(a) 218</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>18</strong></td>
<td>(b) 1991</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>19</strong></td>
<td>Any three points</td>
</tr>
<tr>
<td></td>
<td>(i) Reduction in import duties on agriculture product</td>
</tr>
<tr>
<td></td>
<td>(ii) Removal of MSP</td>
</tr>
<tr>
<td></td>
<td>(iii) International competition</td>
</tr>
<tr>
<td></td>
<td>(iv) Decrease of public investment in agriculture</td>
</tr>
<tr>
<td></td>
<td>(iv) Decrease in research activity</td>
</tr>
<tr>
<td></td>
<td>$1+1+1$</td>
</tr>
<tr>
<td>20</td>
<td>Defination</td>
</tr>
<tr>
<td>----</td>
<td>-------------</td>
</tr>
<tr>
<td>Any two points</td>
<td></td>
</tr>
<tr>
<td>(i) Increase in Economic growth rate</td>
<td></td>
</tr>
<tr>
<td>(ii) Reduction in fiscal deficit</td>
<td></td>
</tr>
<tr>
<td>(iii) Price control</td>
<td></td>
</tr>
<tr>
<td>(iv) Encourage private sector for more competition</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21</th>
<th>Any three points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) The agriculture sector largest share 70%-75%</td>
<td></td>
</tr>
<tr>
<td>(ii) Manufacturing sector 10%</td>
<td></td>
</tr>
<tr>
<td>(iii) Service sector 15% to 20%</td>
<td></td>
</tr>
<tr>
<td>(iv) Regional disparity like Odisha, Rajasthan and Punjab.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>22</th>
<th>Any three points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) GDP of industrial sector increase from 11.8% in 1951 to 24.6% in 1991.</td>
<td></td>
</tr>
<tr>
<td>(ii) Annual Industrial growth rate was 6%</td>
<td></td>
</tr>
<tr>
<td>(iii) Diversified of Indian industry by 1990</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>23</th>
<th>Any three points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Reduction in tariff rate</td>
<td></td>
</tr>
<tr>
<td>(ii) Removal of licensing procedure</td>
<td></td>
</tr>
<tr>
<td>(iii) Regulated interest rate through bank</td>
<td></td>
</tr>
<tr>
<td>(iv) Removal of restriction of import and export.</td>
<td></td>
</tr>
<tr>
<td>Or</td>
<td></td>
</tr>
<tr>
<td>(i) Selling of minority holding</td>
<td></td>
</tr>
<tr>
<td>(ii) Strategic sale</td>
<td></td>
</tr>
<tr>
<td>(iii) Removing quantitative restriction</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24</th>
<th>Any four points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Reduction in number of public sector units from 17 to 4</td>
<td></td>
</tr>
<tr>
<td>(ii) Disinvestment of public sector</td>
<td></td>
</tr>
<tr>
<td>(iii) Increase in share of private sector</td>
<td></td>
</tr>
<tr>
<td>(iv) Corporation of public department</td>
<td></td>
</tr>
<tr>
<td>Or</td>
<td></td>
</tr>
<tr>
<td>(i) Acute inequality in free market policies</td>
<td></td>
</tr>
<tr>
<td>(ii) Benefited to educated people</td>
<td></td>
</tr>
<tr>
<td>(iii) Blessing to rich farmers</td>
<td></td>
</tr>
<tr>
<td>(iv) Less public investment in road and irrigation in rural areas.</td>
<td></td>
</tr>
<tr>
<td>(v) Vicious circle of poverty in rural area.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>25</th>
<th>(i) Abolition of intermediaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) Land ceiling</td>
<td></td>
</tr>
<tr>
<td>(iii) Consolidation of land holdings</td>
<td></td>
</tr>
<tr>
<td>(iv) Growth and equity in Agriculture land.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>26</th>
<th>Main intention (any three)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) To control and administration over Indian territory</td>
<td></td>
</tr>
<tr>
<td>(ii) Earn profits through trade</td>
<td></td>
</tr>
<tr>
<td>(iii) Movement of military forces</td>
<td></td>
</tr>
<tr>
<td>(iv) Profitable investment of British fund.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Favorable impact (any three points)</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>(i) Increased movement of people</td>
</tr>
<tr>
<td></td>
<td>(ii) Increased commercialization of Agriculture</td>
</tr>
<tr>
<td></td>
<td>(iii) Volume of India export trade increased.</td>
</tr>
<tr>
<td></td>
<td>(iv) Increase Industrial development</td>
</tr>
<tr>
<td></td>
<td>(v)</td>
</tr>
</tbody>
</table>

| 27  | (i) No | 1+2+2+1 |
|     | (ii) Disinvest only increase revenue for short period only |  |
|     | (iii) Substantial loss to the Govt |  |
|     | (iv) Increase monopoly power of private sector |  |

| 28  | Defination | 2+ 2  +2 |
|     | Achievement |  |
|     | Failure |  |
|     | Or |  |
|     | Defination |  |
|     | Method |  |
|     | (i) New agriculture strategy |  |
|     | (ii) Seed- fertilizer water technology |  |
|     | Benefits |  |
|     | (i) Increase in Income |  |
|     | (ii) Impact social revolution\ |  |
|     | (iii) Increase employment |  |

KENDRIYA VIDYALAYA SANGATHAN
SESSION ENDING EXAMINATION
SUB- ECONOMICS CLASS - XI

BLUE PRINT

<table>
<thead>
<tr>
<th>UNITS</th>
<th>1 MARK MCQ</th>
<th>3 MARKS</th>
<th>4 MARKS</th>
<th>6 MARKS</th>
<th>OTBA 5 Mark</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part : A</td>
<td>STATISTICS FOR ECONOMICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Introduction</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Collection, Organisation and Presentation of Data</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Statistical Tools and Interpretation</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Part: B</td>
<td>Indian Economic Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(i) Development Experience (1947-1990)</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(ii) Economic Reforms since 1991</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Current Challenges Facing Indian Economy</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Development Experiences of India: A Comparison with Neighbours(OTBA)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5x1 = 5</strong></td>
<td><strong>9x3 = 27</strong></td>
<td><strong>3x4 = 12</strong></td>
<td><strong>6x6 = 36</strong></td>
<td><strong>2x5 = 10</strong></td>
<td><strong>90</strong></td>
</tr>
<tr>
<td>Part: C</td>
<td>Project Work</td>
<td><strong>To be assigned and evaluated at the Vidyalaya Level</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**KENDRIYA VIDYALAYA SANGATHAN**

**SESSION ENDING EXAMINATION**

**CLASS: X**

**MAXIMUM MARKS: 90**

**SUBJECT: ECONOMICS**

**TIME ALLOWED: 3 HRS**

(SET – I)

**General Instructions:**

(i) All questions in both the sections are compulsory.

(ii) Marks for questions are indicated against each.

(iii) Questions No. 1-2 and 12-14 are Multiple Choice Questions carrying 1 mark each. One correct option is to be chosen as the answer from the 4 options.
(iv) Questions No. 3-6 and 15-19 are short-answer questions carrying 3 marks each. Answers to them should normally not exceed 60 words each.

(v) Questions No. 7-8 and 20 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.

(vi) Questions No. 9-11 and 21-23 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.

(vii) Questions Nos. 24 and 25 are long answer questions carrying 5 marks which are based on OTBA materials.

(viii) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION – A (STATISTICS FOR ECONOMICS)

1. The standard deviation of a set of 50 observation is 8. If each observation is multiplied by 2, then the value of S.D will be
   
   (1)
   
   (a) 4  (b) 16  (c) 8  (d) None of these

2. The range of simple correlation coefficient is

   (a) 0 to infinity  (b) -1 to +1  © - ∞ to ∞  (d) None of these.

3. Write the characteristics of statistics in economics.

   (3)

4. Explain any three problems of construction of an index number.

   (3)

OR
What is consumer Price Index ? Write down its uses of it.

5. Calculate the Index Number by using simple aggregate price index methods from the data given below:

<table>
<thead>
<tr>
<th>Items</th>
<th>Price in 2000</th>
<th>Price in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Clothing</td>
<td>500</td>
<td>320</td>
</tr>
<tr>
<td>Fuel</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>House rent</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>Misc.</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

6. What are the merits of median? Mention any three.  

7. Find out Karlpearson’s Correlation coefficient from the following data:

<table>
<thead>
<tr>
<th>Marks In Eco</th>
<th>30</th>
<th>40</th>
<th>60</th>
<th>70</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks in Stat</td>
<td>90</td>
<td>110</td>
<td>140</td>
<td>150</td>
<td>160</td>
</tr>
</tbody>
</table>

8. What is secondary data? Explain briefly any two methods to collect secondary data.

OR अथवा

Explain the exclusive and inclusive methods used in the classification of data

9. Find out Mean and Median of the data given below

<table>
<thead>
<tr>
<th>Marks</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Students</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

OR

The size of land holdings of families in a village is given below. Find the Mode size of land holding.

<table>
<thead>
<tr>
<th>Size of land Holdings (in acres)</th>
<th>100-200</th>
<th>200-300</th>
<th>300-400</th>
<th>400-500</th>
<th>500-600</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of families</td>
<td>15</td>
<td>18</td>
<td>30</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>
10. Draw Ogive by less than method and more than method from the following data: (6)

<table>
<thead>
<tr>
<th>Marks</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Define dispersion. Calculate Standard Deviation from the following data: (6)

<table>
<thead>
<tr>
<th>X</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

SECTION – B

INDIAN ECONOMIC DEVELOPMENT

12. Which year is known as great divide year in India (1)
(a) 1921  (b) 1931  (c) 1911  (d) 1951

13. Which state in India is lagging behind in health care facilities? (1)
(a) Bihar  (b) Kerala  (c) Karnataka  (d) Odisha

14. Organic farming was first suggested in India in (1)
(a) 1892  (b) 1982  (c) 1966  (d) 1995

15. What were the main causes of agricultural stagnation during the British rule? (3)

OR
What was the focus of the economic policies pursued by the colonial government in India? What were the impacts of these policies?

16. Highlight the positive contribution made by the British in India (3)

17. Why were economic reforms introduced in India? (3)

18. Give arguments against the economic reforms in 1991 (3)

19. Why is rural banking essential for rural development? (3)

*20. Activities to suggest Illustrate the difference between rural and urban poverty. Is it correct to say that poverty has shifted from rural to urban areas? use the trends in poverty ratio to support your answer. (4)

21. What is public sector? Explain the main objective of Public sector and how did it benefit to the country after independence? (6)

Or

Why and how Private sector is being regulated under Industrial Policy Resolution 1956?


23. What kind of development strategy must the present generation adopt to promote sustainable development

SECTION – C (OPEN TEXT BASED ASSESSMENT)

24. State the developmental initiatives taken by Pakistan for its economic development. Why were slow growth and re-emergence of poverty occurred in Pakistan? 5

25. Compare and contrast the development of India, China and Pakistan with respect to some salient human development indicators. 5
KENDRIYA VIDYALAYA SANGATHAN
SESSION ENDING EXAMINATION
CLASS: X
MAXIMUM MARKS: 90
SUBJECT: ECONOMICS
TIME ALLOWED: 3 HRS

(SET – II)

General Instructions:

(i) All questions in both the sections are compulsory.

(ii) Marks for questions are indicated against each.

(iii) Questions No. 1-2 and 12-14 are Multiple Choice Questions carrying 1 mark each. One correct option is to be chosen as the answer from the 4 options.
(iv) Questions No. 3-6 and 15-19 are short-answer questions carrying 3 marks each. Answers to them should normally not exceed 60 words each.

(v) Questions No. 7-8 and 20 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.

(vi) Questions No. 9-11 and 21-23 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.

(vii) Questions Nos. 24 and 25 are long answer questions carrying 5 marks which are based on OTBA materials.

(viii) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION – A (STATISTICS FOR ECONOMICS)

1. The most suitable average for qualitative measurement is (1)
   (a) Mean  (b) Median
   (c) Mode  (d) Geometric Mean

2. The coefficient of correlation is independent of (1)
   (a) Origin but not scale  (b) Scale but not origin
   (c) both origin and scale  (d) neither origin nor scale

3. Explain the importance of statistics in economics. (3)

4. What is Wholesale Price Index? Write any two uses of Index Number. (3)

OR
Write a short note on SENSEX.

5. Calculate weighted aggregate price index number from the following data by using Laspeyre’s Method.

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Base period</th>
<th>Current Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Price</td>
<td>Quantity</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>

6. What are the uses of Range? Mention any three. (3)

7. Draw a Lorenz curve from the following table regarding income of persons: (4)

<table>
<thead>
<tr>
<th>Wages</th>
<th>Factory A</th>
<th>Factory B</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>60</td>
<td>150</td>
</tr>
<tr>
<td>12</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>14</td>
<td>120</td>
<td>90</td>
</tr>
<tr>
<td>16</td>
<td>90</td>
<td>110</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>28</td>
<td>50</td>
<td>20</td>
</tr>
</tbody>
</table>

8. Explain the two sources of secondary data in India. (4)

(i) Census of India
(ii) National Sample survey Organisation

OR अथवा

Distinguish between random sampling and non-random sampling.

9. What is a histogram? Draw a histogram of the data given below and determine the value of mode. (6)

<table>
<thead>
<tr>
<th>Mid Value</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>35</td>
<td>18</td>
</tr>
<tr>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>55</td>
<td>4</td>
</tr>
</tbody>
</table>
OR

Convert the following inclusive series into exclusive series:

<table>
<thead>
<tr>
<th>Class Interval</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>21-25</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of workers</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
</tbody>
</table>

10. From the following calculate Mean Deviation from mean and Quartile Deviation from the following: (6)

<table>
<thead>
<tr>
<th>Daily Income (in Rs)</th>
<th>100-200</th>
<th>200-300</th>
<th>300-400</th>
<th>400-500</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of workers</td>
<td>04</td>
<td>06</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

11. Calculate Arithmetic mean and median from the following data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>8</td>
<td>15</td>
<td>25</td>
<td>20</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

SECTION – B INDIAN ECONOMIC DEVELOPMENT

12. When was India’s first official census operation undertaken? (1)
   (a) 1881          (b) 1871
   (c) 1861          (d) 1891

13. Which of the following is a programme for the benefit of the elder people? (1)
   (a) Public distribution system
   (b) PradhanMantri Gram SadakYojana
   (c) Social AssistanceProgramme
   (d) National Food for Work Programme

14. NABARD was set up in (1)
   (a) 1892          (b) 1982
   (c) 1966          (d) 1995
15. What was the condition of Indian industries at the time of independence? (3)

Or

What do you understand by the term “drain of Wealth” during colonial period?

16. Do you think the Zamindari system has really been abolished in India? If not, suggest measure to banish it. (3)

17. Explain the causes that have taken place in implementing the New Economic Policy by the Indian Government. (3)

18. “India is benefiting from liberalisation and integration of world markets. Comment on this statement in the light of outsourcing service.” (3)

19. How does investment of Human Capital contribute economic growth? (3)

20. Justify that energy crisis can be overcome with use of renewable sources of energy. (4)

21. While subsidies encourage farmers to use new technology, they are a huge burden on government finances. Discuss the usefulness of subsidies in the light of this fact. (6)

22. What measures have been taken to give more priority to private sector in the development process of Indian Economy? Explain. (6)

23. Critically evaluate the role of rural banking system in the process of rural development in India? (6)

SECTION – C (OPEN TEXT BASED ASSESSMENT)

24. Discuss the issue of free trade between India and China, India & Pakistan. 5

25. Compare the growth rate trends in China, India and Pakistan in the last two decades. 5
General Instructions:

(i) All questions in both the sections are compulsory.

(ii) Marks for questions are indicated against each.

(iii) Questions No. 1-2 and 12-14 are Multiple Choice Questions carrying 1 mark each. One correct option is to be chosen as the answer from the 4 options.
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(v) Questions No. 7-8 and 20 are also short-answer questions carrying 4 marks each. Answers to them should normally not exceed 70 words each.

(vi) Questions No. 9-11 and 21-23 are long-answer questions carrying 6 marks each. Answers to them should normally not exceed 100 words each.

(vii) Questions Nos. 24 and 25 are long answer questions carrying 5 marks which are based on OTBA materials.

(viii) Answers should be brief and to the point and the above word limits should be adhered to as far as possible. But these word limits are not applicable to numerical questions.

SECTION – A (STATISTICS FOR ECONOMICS)

1. One of the measures of dispersion which is more useful in case of open-end distribution: (1)

(a) Range  
(b) Mean Deviation  
(c) Standard Deviation  
(d) Quartile Deviation

2. While drawing a scatter diagram if all points appear to form a straight line downward from left to right, then there is: (1)

(a) Perfect positive correlation  
(b) Perfect negative correlation  
(c) No correlation  
(d) Simple positive correlation

3. Explain the importance of statistics in economics. (3)

4. Explain any three uses of an index number in economics. (3)

OR
Distinguish between Consumer Price Index (CPI) and Wholesale Price Index (WPI).

5. Calculate the Index Number by using weighted index of price relative method from the data given below:

<table>
<thead>
<tr>
<th>Items</th>
<th>Price in 2000</th>
<th>Price in 2010</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>100</td>
<td>200</td>
<td>75</td>
</tr>
<tr>
<td>Clothing</td>
<td>20</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Fuel</td>
<td>15</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>House rent</td>
<td>30</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>Misc.</td>
<td>35</td>
<td>65</td>
<td>4</td>
</tr>
</tbody>
</table>

6. What are the desirable properties of Arithmetic Mean? Mention any three. (3)

7. Find out rank correlation coefficient from the following: (4)

<table>
<thead>
<tr>
<th>X</th>
<th>65</th>
<th>66</th>
<th>57</th>
<th>67</th>
<th>68</th>
<th>69</th>
<th>70</th>
<th>72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>67</td>
<td>56</td>
<td>65</td>
<td>68</td>
<td>72</td>
<td>72</td>
<td>69</td>
<td>71</td>
</tr>
</tbody>
</table>

8. What is primary data? Explain briefly any two methods to collect primary data. (4)

OR अथवा

What is a variable? Distinguish between a discrete and a continuous variable with examples.

9. What is a histogram? Draw a histogram of the data given below and determine the value of mode. (6)

<table>
<thead>
<tr>
<th>Wages</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Employees</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

OR

Draw ‘less than Ogive’ and ‘more than Ogive’ and find out the value of Median from the following:

<table>
<thead>
<tr>
<th>Marks</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
<th>70-80</th>
<th>80-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of Students</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. From the following calculate mean and median from the following:   (6)

<table>
<thead>
<tr>
<th>Daily Income (in Rs)</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of workers</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Define standard deviation. Calculate Standard Deviation and Coefficient of Variation from the following: (6)

\[
X: \begin{array}{cccccc}
35 & 95 & 50 & 80 & 120 \\
\end{array}
\]

SECTION – B INDIAN ECONOMIC DEVELOPMENT

12. The positive contribution made by the colonial rule in India was:   (1)
   (a) Estimation of National Income   (b) Provision of basic infrastructure
   (c) Export of capital goods   (d) Higher agricultural productivity

13. The indicator which measures the extent of democratic participation in social and political decision making is called:   (1)
   (a) Political indicator   (b) Growth indicator
   (c) Liberty indicator   (d) All of these

14. Planning started in Pakistan in the year:   (1)
   (a) 1951   (b) 1952   (c) 1953   (d) 1956

15. What were the main causes of agricultural stagnation during the Brit
OR

What was the focus of the economic policies pursued by the colonial government in India? What were the impacts of these policies?

16. Explain the need and type of land reforms implemented in the agricultural sector after independence. (3)

17. Why were economic reforms introduced in India? (3)

18. When was WTO founded? Write any two objectives of forming WTO. (3)

19. What are the various indicators of human development? (3)

*20. What is disguised employment? How disguised unemployment can solve in rural area in India? (4)

21. What is Green Revolution? Why was it implemented in the agricultural sector and how did it benefit the farmers? (6)

22. What is New Economic Policy (NEP)? Why was agricultural sector affected adversely by the reform process of NEP? Explain. (6)

23. “Infrastructure contributes to the economic development of a country” Do you agree? Explain

SECTION – C (OPEN TEXT BASED ASSESSMENT)

24. Discuss the issue of free trade between India and China, India & Pakistan. 5

25. Compare the growth rate trends in China, India and Pakistan in the last two decades. 5
<table>
<thead>
<tr>
<th>Q.No.</th>
<th>SECTION – A: VALUE POINTS</th>
<th>DISTRIBUTION OF MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(b) 16</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>(b) -1 to +1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Any three point of singular sense or plural sense</td>
<td>1+1+1</td>
</tr>
<tr>
<td>4</td>
<td>Any three problems of index number or Def of CI &amp; any three uses</td>
<td>1 +1+1</td>
</tr>
<tr>
<td>5</td>
<td>Table calculation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ans: 113.3</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Any three merits</td>
<td>1+1+1</td>
</tr>
<tr>
<td>7</td>
<td>Table Calculation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ans: 0.94</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Define Secondary Data</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Two Methods Brief Explanation</td>
<td>1 ½ + 1 ½</td>
</tr>
<tr>
<td>9</td>
<td>Table Calculation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mean = 40, Median = 42.5</td>
<td>3</td>
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<td>OR</td>
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<td>Table calculation</td>
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<tr>
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<td>Mode = 354.54</td>
<td>3</td>
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<td>10</td>
<td>Less and more than CF</td>
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<td>Drawing of less than and more than ogive</td>
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<td>Finding the value of median</td>
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<td>11</td>
<td>Definition of dispersion</td>
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<td>Table</td>
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| **Table calculation**  
Finding the value Standard Deviation as 3.06 | 3 |
| 12 | (a) 1921 | 1 |
| 13 | (a) Bihar | 1 |
| 14 | (d) 1966 | 1 |
| 15 | Any three causes  
(i) Land settlement  
(ii) Low level of technology  
(iii) Lack of irrigation  
(iv) Less use of fertilizer and pesticides | 1+1+1 |
| 16 | Any three  
(i) Political & economic unification  
(ii) Development of Infrastructure  
(iii) Emergence market economy  
(iv) Currency system | 1+1+1+1 |
| 17 | Any three causes of economic reforms  
(i) Slow growth rate  
(ii) Gulf crisis  
(iii) High inflation  
(iv) Poor management of public sector  
(v) Wide fluctuation of stock market | 1+1+1+1 |
| 18 | Any three against of Economic reforms | 1+1+1 |
| 19 | (i) Control to exploitation of money lender  
(ii) Availability of service and credit facilities  
(iii) Long term loans with better repayment  
(iv) Credit facilities for self employment | 1+1+1+1 |
| 20 | (i) Rural area :- land less labour, small and marginal farmers  
(ii) Urban area :- unemployed youth, underemployed  
(iii) Rural & Urban Break up  
(iv) (a) Decline of poverty in rural area from 27.1% to 21.8%  
(b) Decline of poverty in Urban area from 23.6% to 21.7% | 1+1+1+1 |
| 21 | **Defination of Public Sector**  
Objective of Public sector  
Benefits from Public sector  
Or  
Role of private sector in IPR 1956  
Licensing policy  
Import substitution & Export promotion | 1 2 1/2 2 1/2 |
| 22 | **Meaning of NEP**  
Adverse effects of reforms on social justice and welfare  
(i) Encourage growth of monopoly of power | 1 1/5 |
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| **23** | Any six points  
(i) Use of Non-conventional sources of Energy  
(ii) LPG, Gobar Gas in Rural Area  
(iii) CNG in Urban area  
(iv) Wind power  
(v) Solar power  
(vi) Mini Hydel Plants  
(vii) Traditional Knowledge and practices  
(viii) Bio composting  
(ix) Biopest Control |
| **24** | (a) Development strategy of Pakistan  
(b) Cause of slow growth (any three points) |
| **25** | Compare human index indicators among India, China and Pakistan (any five points) |

1+1+1+1+1+1

1+1+1+1+1

2

3

1+1+1+1+1