



## Part A: Statistics for Economics

### Chapter 4 : Presentation of Data

Q. NO	QUESTION	MARKS
1	Assertion (A): Arithmetic graph can be called as time series graph. Reason (R): It helps in understanding trends and periodicity. a) Assertion (A) is correct but Reason (R) is incorrect . b) Assertion (A) is correct and Reason(R) is correct reason. c) Reason (R) is correct but Assertion (A) is wrong. Both Assertion (A) and Reason (R) is wrong.	1
2	Ram has collected data on strength of school from 2019 -2023. Which mode of presentation should he use for comparison and computation of data in the most accurate way. a) Textual presentation. b) Diagrammatic presentation c) Tabular presentation. None of the above.	1
3	Diagram which are used to compare the net deviation of related variables with respect to time and location are- a) Deviation Bar diagram b) Simple bar diagram. c) Multiple bar diagram Pie diagram.	1
4	Choose the correct statement out of the statements given below. a) Histogram of inclusive series can only be constructed when converted into exclusive series. b) Mid value series should be converted to normal frequency distribution in order to draw frequency polygon. c) Frequency curves are drawn by joining mid points of the histogram by straight line. It is not possible to construct a histogram if frequency distribution is unequal.	1
5	If Satish has spent 40% of his income on food what will be the degree of an angle in pie diagram. a) $144^\circ$ b) $140^\circ$ c) $115^\circ$ $40^\circ$	1
6	Common average lines are used when two variables are given in same time. Choose the correct option: a) True. b) False c) Partially true Incomplete statement.	1

7	Which of the following refers to geometric form of data presentation.? a) Bar diagram b) Histogram. c) Pie diagram. Both a & c	1																					
8	Anjali has collected data on marks of her class ,in which there are two extreme values.Which bar diagram is suitable for representing data with two extreme values . a) Broken bar diagram. b) Percentage bar diagram. c) Multiple bar diagram. Deviation bar diagram.	1																					
9	Histogram are rectangular bar graph which are used to represent- a) Individual series b) Discreet series. c) Continuous series. None of the above.	1																					
10	Normal curve are also known as- a) J- shaped b) L-shaped c) U- shaped d) Bell shaped	1																					
11	Define tabulation of data.	1																					
12	The column heading of a table is known as: (a)Body (b)Stubs (c)Reference notes (d)Caption	1																					
13	The brief explanation of the contents of a table is known as -----.	1																					
14	What is the main part of the table called?	1																					
15	Bar diagram is a: (a)One-dimensional diagram (b) Two-dimensional (c) Diagram with no dimension (d)None of the above	1																					
16	If a house hold spends 60% of his income on food, then degree measure of an angle in the pie-diagram will be: (a)216 (b)126 (c)261 (d) None of the above	1																					
17	The value of----- can be located graphically by the help of Ogives. (a)Mode (b) Mean (C)Median (d)None of the above.	1																					
18	Define Ogive.	1																					
19	Graphically Mode can be found by: (a)Frequency Polygon (b)Ogive (c)Histogram (d) None of the above.	1																					
20	What is meant by tabulation? What are the merits of tabulation?	1																					
21	What is meant by bar diagram? What are the different types of bar diagrams?	3																					
22	What is the difference between histogram and frequency polygon?	3																					
23	The following table gives data on the production and sales of a factory (in 1000Rs) between January and June. Present the information in the form of a two variable Arithmetic line graph. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>January</th> <th>February</th> <th>March</th> <th>April</th> <th>May</th> <th>June</th> </tr> </thead> <tbody> <tr> <td>Production</td> <td>5</td> <td>7.5</td> <td>5</td> <td>10</td> <td>12.5</td> <td>15</td> </tr> <tr> <td>Sales</td> <td>7.5</td> <td>10</td> <td>7.5</td> <td>12.5</td> <td>15</td> <td>17.5</td> </tr> </tbody> </table>	Month	January	February	March	April	May	June	Production	5	7.5	5	10	12.5	15	Sales	7.5	10	7.5	12.5	15	17.5	3
Month	January	February	March	April	May	June																	
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Sales	7.5	10	7.5	12.5	15	17.5																	
24	Briefly explain the different rules for construction of a graph.	3																					
25	Make histogram of the following bar graph <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Marks:</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40-50</td> <td>50-60</td> <td>60-70</td> </tr> </table>	Marks:	10-20	20-30	30-40	40-50	50-60	60-70	3														
Marks:	10-20	20-30	30-40	40-50	50-60	60-70																	

	No. of students	42	38	120	84	48	36	
<b>26</b>	Define multiple bar diagram. Draw a multiple bar diagram for the following table-							<b>4</b>
	Students	1	2	3				
	Marks in economics	45	35	50				
	Marks in English	30	20	35				
<b>27</b>	Describe the procedure of drawing a histogram when class interval are- i. Equal class. Unequal class.							<b>4</b>
<b>28</b>	Discuss about the various types of bar diagram.							<b>4</b>
<b>29</b>	Briefly describe the main components of a table.							<b>4</b>
<b>30</b>	What is graphic presentation of data? What are the rules for construction of a graph?							<b>4</b>
<b>31</b>	What is false base line? How many types of time series graphs are there?							<b>4</b>
<b>32</b>	Present the following data in the form of a Pie-diagram:							<b>6</b>
	Items	Amount of expenditure						
	Cement	150						
	Bricks	100						
	Iron	125						
	Labour	75						
	Misc.	50						
<b>33</b>	What are the limitations of graphic presentation of data?							<b>6</b>
<b>34</b>	From the following data ,calculate less than ogive and more than ogive:							<b>6</b>
	Marks:	1-9	10-19	20-29	30-39	40-49		
	No of students:	5	6	2	8	4		
<b>35</b>	Define Ogive. The frequency distribution obtained by students in class test is given below. Draw more than Ogive curve.							<b>4</b>
	Marks	0-10	10-20	20-30	30-40	40-50		
	No. of students	3	12	16	11	8		
<b>36</b>	How is pie diagram different from bar diagram? Represent the following data by pie diagram.							<b>4</b>

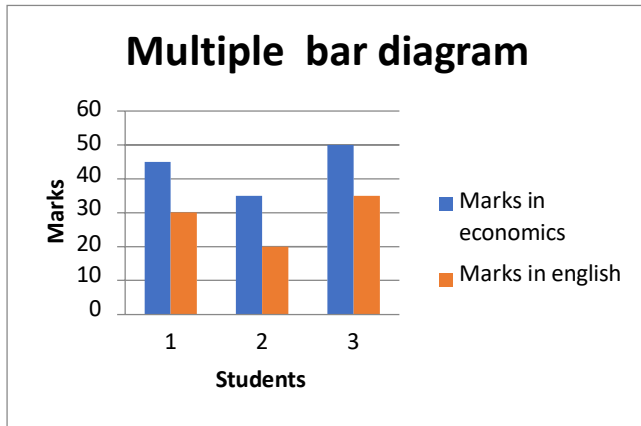
	<b>SECTOR</b>	<b>%SHARE</b>	
	Primary	16.2	
	Secondary	25.4	
	Transport	27.5	
	Finance and insurance	18.1	
	Community and social service	12.8	
	Total	100	
<b>37</b>	Adam is going to prepare a table of presentation of data on numbers of students in his college. Briefly discuss the features of constructing a good table that he should keep in mind to prepare a good table.		<b>4</b>

## ANSWER

<b>1</b>	Assertion (A) is correct and Reason (R) is correct reason
<b>2</b>	Tabular Presentation
<b>3</b>	Deviation Bar diagram
<b>4</b>	Histogram of inclusive series can only be constructed when converted into exclusive series.
<b>5</b>	144°
<b>6</b>	False
<b>7</b>	Histogram
<b>8</b>	Broken bar graph
<b>9</b>	Continuous series.
<b>10</b>	Bell shaped
<b>11</b>	Tabulation is a systematic presentation of numerical data in the form of rows and columns.
<b>12</b>	(d)Caption
<b>13</b>	Title
<b>14</b>	Body
<b>15</b>	(a)One-dimensional diagram
<b>16</b>	(a)216 (60x3.6=216)
<b>17</b>	(C)Median
<b>18</b>	Ogive is a curve which is constructed by plotting cumulative frequency data on the graph paper.
<b>19</b>	(c)Histogram
<b>20</b>	<p>Tabulation is a systematic presentation of numerical data in the form of rows and columns.</p> <p>Merits of tabulation are as follows:</p> <p>i) It is the simplest form of data presentation.</p> <p>ii) It facilitates comparison of data by presenting them in different classes.</p> <p>iii) It is very easy to analyse data from tables.</p> <p>iv) It highlights</p>

	the characteristics of data. economical mode of presentation as it saves time as well as space.	v) It is very																					
21	Bar diagrams are the diagrams in which data are presented in the form of bars or rectangles. There are three types of bar diagrams: Multiple bar diagram and sub-divided bar diagram.	---Simple bar diagram, Component bar diagram or																					
22	. A histogram is a graphical presentation of a frequency distribution of a continuous series. -All midpoints indicating frequencies of the different classes joined to make a graph are called frequency polygon.																						
23	The data in the table will be presented on the form of graph in the same manner as shown in the above graph. In the graph, following data pertaining to both production and sales are shown on Y-axis. These are represented by two different graph lines in the same graph																						
	<table border="1"> <caption>Data for Line Graph</caption> <thead> <tr> <th>Month</th> <th>Sales</th> <th>Production</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>12</td> <td>5</td> </tr> <tr> <td>February</td> <td>18</td> <td>8</td> </tr> <tr> <td>March</td> <td>12</td> <td>5</td> </tr> <tr> <td>April</td> <td>22</td> <td>10</td> </tr> <tr> <td>May</td> <td>27</td> <td>12</td> </tr> <tr> <td>June</td> <td>32</td> <td>15</td> </tr> </tbody> </table>		Month	Sales	Production	January	12	5	February	18	8	March	12	5	April	22	10	May	27	12	June	32	15
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24	When set of statistical data are presented on a graph, it is called a graph. The following points should be kept in mind while constructing a graph: i. <b>Heading:</b> every craft must have a suitable and precise heading. Heading must be self explanatory about the nature of information in the graph ii. <b>Choice of scale:</b> an appropriate scale is the one by which the entire data reasoning represented by the graph the graph should be on the middle of the graph paper to make it attractive. iii. <b>Proportion of axis:</b> As far as possible length of x-axis on the graph paper should be one and a half times the length of y axis. (ANY 3 RELEVANT POINTS TO BE MENTIONED)																						
25	A histogram is a graphical presentation of frequency distribution of a continuous series.																						
	<table border="1"> <caption>Data for Histogram</caption> <thead> <tr> <th>Marks Range</th> <th>No. of students</th> </tr> </thead> <tbody> <tr> <td>10 to 20</td> <td>40</td> </tr> <tr> <td>20 to 30</td> <td>35</td> </tr> <tr> <td>30 to 40</td> <td>120</td> </tr> <tr> <td>40 to 50</td> <td>80</td> </tr> <tr> <td>50 to 60</td> <td>45</td> </tr> <tr> <td>60 to 70</td> <td>35</td> </tr> </tbody> </table>		Marks Range	No. of students	10 to 20	40	20 to 30	35	30 to 40	120	40 to 50	80	50 to 60	45	60 to 70	35							
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26 Multiple bar diagram are those which shows two or more data simultaneous . Separate bars are drawn to present separate sets of values.



27 Histograms of frequency distributions are of two types:  
 i. Histogram for equal class intervals  
 ii. Histogram for unequal class intervals  
**Histograms for equal class intervals:** histograms of equal class intervals are those which are based on data with equal class intervals. Length of the rectangles would be different in proportion to the frequency of the class intervals.

**Histogram for unequal class intervals:** before presenting the data in the form of graphs frequency of unequal class intervals are. First we note a class of the smallest interval. Other classes are noted in the increasing order of their class intervals. Exercise of one class interval is twice the smallest size in the series frequency of that class is divided by 2.

28 Bar diagrams are those diagrams in which data are present in form of bars or rectangles The different types of bar diagram are as follows:  
 i. Simple bar diagram: simple bar diagrams are done which are these on a single set of numerical data.  
 ii. Multiple bar diagram: Multiple bar diagrams are those diagrams which shows to or more sets of data simultaneously.  
 iii. Divided bar diagrams: sab divided bar diagrams are those diagrams with simultaneously presents total values as well as a part value of a set of data.  
 iv. Percentage power diagram: percentage bar diagrams are those diagrams which shows simultaneously different parts of the values of set of data in terms of percentage.  
 (Any 4 relevant points to be mentioned.)

29 Main components of a table are as follows:  
 is numbered for easy identification.  
 explanatory.  
 are mentioned here.  
 -Caption: It is the title of columns.  
 contains the main data.  
 for clarification of the reader.  
 below the footnote.

-Table number: It  
 -Title: It should be self  
 -Headnote: Units of measurement  
 -Stub: It is the title of rows.  
 -Body: It  
 -Footnote: It is given  
 Source: Source of data is specified

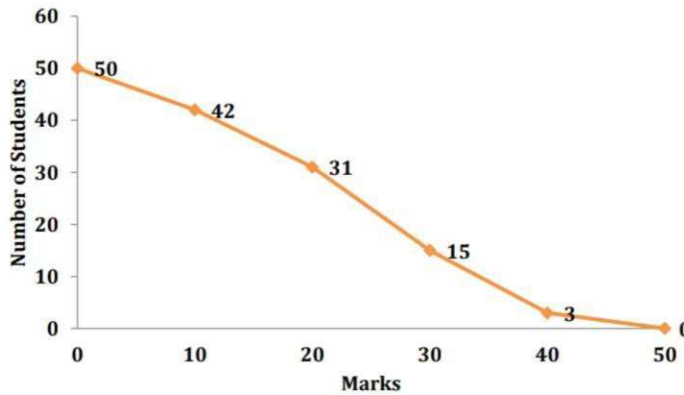
30 When a set of statistical data are presented on a graph paper, it is called as graphic presentation of data.  
 Rules for construction of a graph  
 ---Choice of scale  
 axis  
 -Lines of different types  
 base line

-Heading  
 ---Proportion of  
 -Method of plotting the points  
 -Use of false

31	<p>False base line is used when the values in a series are very large and the difference between the smallest value and zero is high.</p> <p>There are two types of time series graphs. They are a)One variable graph b)Two or more than two variable graph</p>																																			
32	<p>Calculation of degrees for different items:</p> <table border="1" data-bbox="245 384 1523 846"> <thead> <tr> <th>Items</th> <th>Amount of expenditure</th> <th>Percentage of expenditure</th> <th>Degree of Angles</th> <th></th> </tr> </thead> <tbody> <tr> <td>Cement</td> <td>150</td> <td><math>150/500 \times 100 = 30</math></td> <td><math>30/100 \times 360^* = 108^*</math></td> <td></td> </tr> <tr> <td>Bricks</td> <td>100</td> <td><math>100/500 \times 100 = 20</math></td> <td><math>20/100 \times 360 = 72^*</math></td> <td></td> </tr> <tr> <td>Iron</td> <td>125</td> <td><math>125/500 \times 100 = 25</math></td> <td><math>25/100 \times 360 = 90^*</math></td> <td></td> </tr> <tr> <td>Labour</td> <td>75</td> <td><math>75/500 \times 100 = 15</math></td> <td><math>15/100 \times 360 = 54^*</math></td> <td></td> </tr> <tr> <td>Misc.</td> <td>50</td> <td><math>50/500 \times 100 = 10</math></td> <td><math>10/100 \times 360 = 36^*</math></td> <td></td> </tr> <tr> <td>Total</td> <td>500</td> <td>100</td> <td>360*</td> <td></td> </tr> </tbody> </table> <p>A suitable Pie-diagram may be drawn on the basis of the given degrees. Suitable index may be applied to different items of expenditure.</p>	Items	Amount of expenditure	Percentage of expenditure	Degree of Angles		Cement	150	$150/500 \times 100 = 30$	$30/100 \times 360^* = 108^*$		Bricks	100	$100/500 \times 100 = 20$	$20/100 \times 360 = 72^*$		Iron	125	$125/500 \times 100 = 25$	$25/100 \times 360 = 90^*$		Labour	75	$75/500 \times 100 = 15$	$15/100 \times 360 = 54^*$		Misc.	50	$50/500 \times 100 = 10$	$10/100 \times 360 = 36^*$		Total	500	100	360*	
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33	<p>Limitations of graphic presentation of data:</p> <p>i)Limited use for comparison purposes. ii) It can be misused for false projection of statistical facts. iii) It can provide only preliminary conclusions</p>																																			
34	<p>First, convert the inclusive series into exclusive series:</p> <table border="1" data-bbox="245 1188 1292 1581"> <thead> <tr> <th>Less than Ogive</th> <th>C.F.</th> <th>More than Ogive</th> <th>C.F.</th> </tr> </thead> <tbody> <tr> <td>Marks less than 9.5</td> <td>5</td> <td>Marks more than 0.5</td> <td>25</td> </tr> <tr> <td>Marks less than 19.5</td> <td>11</td> <td>Marks more than 9.5</td> <td>20</td> </tr> <tr> <td>Marks less than 29.5</td> <td>13</td> <td>Marks more than 19.5</td> <td>14</td> </tr> <tr> <td>Marks less than 39.5</td> <td>21</td> <td>Marks more than 29.5</td> <td>12</td> </tr> <tr> <td>Marks less than 49.5</td> <td>25</td> <td>Marks more than 39.5</td> <td>4</td> </tr> </tbody> </table> <p>Then on a graph paper Less than and More than Ogive may be drawn.</p> <p>Less than ogive will be upward sloping and more than ogive will be downward sloping.</p>	Less than Ogive	C.F.	More than Ogive	C.F.	Marks less than 9.5	5	Marks more than 0.5	25	Marks less than 19.5	11	Marks more than 9.5	20	Marks less than 29.5	13	Marks more than 19.5	14	Marks less than 39.5	21	Marks more than 29.5	12	Marks less than 49.5	25	Marks more than 39.5	4											
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35	<p>The ogive curve is a smooth curve presented by plotting cumulative frequency data on a graph. Here all the data are converted to more than c. f. distribution as follows:</p> <table border="1" data-bbox="245 1745 834 1881"> <thead> <tr> <th>Marks</th> <th>Cumulative frequency</th> </tr> </thead> <tbody> <tr> <td>More than 0</td> <td>50</td> </tr> <tr> <td>More than 10</td> <td>42</td> </tr> </tbody> </table>	Marks	Cumulative frequency	More than 0	50	More than 10	42																													
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More than 20	31
More than 30	15
More than 40	3
More than 50	0

The curve is drawn by plotting c.f. against lower limit of the class intervals. These points are join to obtain the more than Ogive curve.

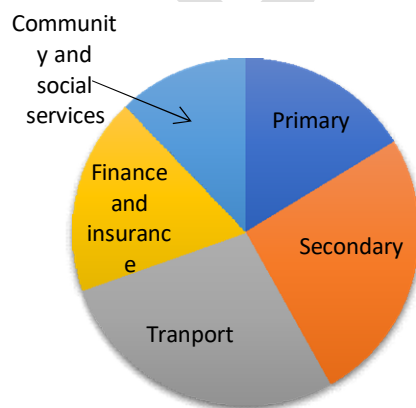


36 The difference between between pie chart and bar diagram are as follows:

- Pie charts are circular pictures showing proportions of many elements. Where as bar diagrams are rectangular bars that are plotted horizontally and vertically on axes of different heights of representing categorical data.
- a pie chart can show only a few values without segregating the slices from the data it is where as diagram you will be able to check the subject value.

Sector	Frequency	Share in terms of Components of 360°
Primary	16.2	$16.2 \div 100 \times 360^\circ = 58.32$
Secondary	25.4	$91.44^\circ$
Transport	27.5	$99^\circ$
Finance and insurance	18.1	$65.16^\circ$
Community and social service.	12.8	$46.08^\circ$

Computing the data on pie chart





**37** Guidelines for the construction of a table or features of a good table are as follows:

- i. **Title as compatible with the objective of the study-** title of the table must be provided at the top centre of the table and it must be compatible with the objective of study.
- ii. **Comparison:** it should be kept in mind that items which are to be compared with each other are placed in columns or rows close to each other. This facilitates comparison.
- iii. **Stubs:** If they are very long, stubs may be given at the right hand side of the table also.
- iv. **Simple economical and attractive:** a table must be simple attractive and economical in space.
- v. **Source of data:** source of data must be noted at the foot of the table it is generally not in next to the footnote
- vi. **Percentage and ratio:** percentage figures should be provided in the table if possible, this makes the data more informative

(Any six relevant points to be mentioned)

DRAFT