

[Time: 3 Hours]

[Total Marks: 80]

Please check whether you have got the right question paper.

- N.B.:
1. All questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Students answering in the regional language should refer in case of doubt to the main text of the paper in English.

Q.1 a) Explain Significance diagrams and graphs in detail. Also write limitation of diagrams and graphs. 10

b) Attempt any Two of the following:

i) Draw the pie diagram for the following data of cost of construction of house. 05

Consumer class	Motive Power	Light & Fans	Domestic Supply	Street Lighting
Percentage of units sold	56	29	13	2

ii) Out of a total number of 1807 women who were interviewed for employment in a textile factory of Mumbai, 512 were from textile areas and the rest from the non-textile areas. Amongst the married women who belonged to textile areas, 247 were experienced and 73 inexperienced; while for non-textile areas, the corresponding figures were 49 and 520. The total number of inexperienced women was 1,341. Total number of experienced women from textile area was 321. Tabulate the data. 05

iii) Prepare a frequency distribution for the following data by taking class interval such that their mid values are 17, 22, 27, 32 and so on. 05

30	30	36	33	42	27	22	41	30
42	30	21	54	36	31	40	28	19
48	26	48	15	37	16	17	54	42
51	44	32	42	31	21	25	36	22
41	40	46						

Q.2 a) What do you understand by central tendency? Give merits and demerits of mode in detail. 10

b) Attempt any Two of the following: 05

i) Find the missing frequency in the following data with median is 29. 05

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of students	4	--	15	20	7	5

ii) Following is the cumulative frequency distribution of the preferred length of kitchen slabs from the preference study on housewives. Find the mean length of slabs. 05

Length (in meters) more than:	1.0	1.5	2.0	2.5	3.0	3.5
Preference of housewives	: 50	48	42	40	10	5



- iii) The weighted geometric mean of the four numbers are 20, 18, 12, 14 is 11.75. If the weights of the first three numbers are 1, 3 and 4 respectively, find the weights of the fourth number. 05

- Q.3 a) Distinguish between absolute and relative measures of variation. Give a broad classification of the measures of variation. 10

- b) Attempt any Two of the following:

- i) Calculate the mean deviation from mean and median for the following data: 05

100, 150, 200, 250, 360, 490, 500, 600, 671

Also calculate coefficient of mean deviation.

- ii) For a certain data, the range is 10 and coefficient of range is 0.20, find the smallest and largest values of the data. 05

- iii) The means of two samples of size 50 and 100 respectively are 54.1 and 50.3 and the standard deviations are 8 and 7. Find the standard deviation of the combined group of 150 samples. 05

- Q.4 a) What are 'Skewness' and 'Kurtosis'? Bring out their importance in describing frequency distributions. 10

- b) Attempt any Two of the following:

- i) For the following distribution find all four moments about 5. 05

$x$	2	4	6	8	10
$f$	4	6	12	5	3

- ii) For a frequency distribution given below, calculate the coefficient of skewness based on quartiles: 05

Class Limits	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Frequency	5	9	14	20	25	15	8	4

- iii) The first four moments of a distribution about the value 4 of the variable are -1.5, 17, -30 and 108. Find the moment about mean,  $\beta_1$  and  $\beta_2$ . 05

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