

Q. 1 Multiple Choice Questions

- (a) If the average depth of a lake is 1.4 meters, it means that
 (a) there could be a spot in a lake where it is deeper than 1.4 meters
 (b) an adult of average height can walk through the lake
 (c) the deepest point of the lake is 1.4 meters
 (d) None of these
- (b) For a symmetrical distribution all the even order central moments are _____
 (a) ≥ 0 (b) ≤ 0 (c) $= 0$ (d) Any
- (c) In a five number summary, which of the following is not used for data summarization?
 (a) the largest value (b) O_2 (c) the median (d) the mode
- (d) What is the denominator in GFR
 (a) Married women (b) Married women in reproductive age (c) Women in child bearing age (d) All women
- (e) Index numbers are free from a unit of measurement because the index number shows
 (a) Average changes (b) Relative changes (c) Variations (d) None of these
- Q. 2 The mean and variance of seven observations are 8 and 16 respectively. If five of the observations are 2, 4, 10, 12, 14, find the remaining two observations. Draw Box – and – whisker plot based on all observations and find outlier, if any.

OR

- Q. 2 The following table gives the distribution of daily income of 500 workers in a factory.

Daily income(Rs.)	50 - 100	100 - 150	150 - 200	200 - 250	250 - 300	300 - 350
No. of workers	10	25	145	220	70	30

Determine (i) mode wage (ii) the limits for the middle 70% of the workers (iii) no. of workers who earned (i) less than 120 (ii) between 165 to 280 (iii) more than 178 (iv) the no. of workers having daily income more than mean income.

- Q. 3 Two groups with
- n_1
- and
- n_2
- observations having mean
- \bar{X}_1
- and
- \bar{X}_2
- , standard deviations
- S_1
- and
- S_2
- respectively. Derive the formula for combined variance in each of the following cases:

(i) $\bar{X}_1 = \bar{X}_2$

(ii) $n_1 = n_2$

(iii) $n_1 = n_2$ and $\bar{X}_1 = \bar{X}_2$

(iv) $n_1 = n_2$ and $\bar{X}_1 = \bar{X}_2$ and $S_1 = S_2$

OR

- Q. 3 Measurements of the left - hand and right - hand gripping strengths of left- handed writers are recorded.

No.	1	2	3	4	5	6	7	8	9	10
Left-hand	140	90	125	130	95	121	85	97	131	110
Right-hand	138	87	110	132	96	120	86	90	129	100

Compare the gripping strength of left - handed writers with left - hand and right hand using the concept of skewness and comment on your findings.

- Q. 4 If the ratio between Laspeyre's and Paasche's index number is 28: 27, find the missing figure in the following table.

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	1	10	2	5
B	1	5	?	2

Verify whether Laspeyre's and Paasche's index numbers satisfies time reversal and factor reversal test or not?

OR

- Q. 4 What is an index number? Write down the steps in construction of index number.

- Q. 5 The following table gives the birth rates for Rural and Urban areas of a certain district.

Age group	Birth Rates		Female Population (in lacs)
	Rural area	Urban area	
15 - 19	190	206	12.1
20 - 24	284	261	10.5
25 - 29	276	292	9.0
30 - 34	162	144	7.6
35 - 39	124	122	6.3
40 - 44	33	43	5.1

Calculate GRR for both and compare fertility rates. Comment on your findings.

OR

- Q. 5 What is the purpose of standardization of a mortality data? Explain the direct and indirect method of standardization.