VCD/ 28\1\22 FYBSC- SEM I STATISTICS – I 100 MARKS 3HRS

Note: 1. All questions are compulsory.
2. Figures to the right indicate marks.
3. Draw neat, labelled diagrams wherever necessary.

Q.1) Answer the following questions **(10M)**

a) Correct the following if necessary:

i. $E(x) = \mu$ represents that sample mean is unbiased for population mean
ii. $(AB) + (A\beta) = B$
iii. In exclusive type of class interval both the limits are excluded.
iv. Mode can be calculated for data with open-end classes.
v. Standard deviation is the square root of variance.

b) Answer in One sentence: **(10M)**

i. Define positive association
ii. Write formula for Coefficient of Colligation.
iii. Write the formula for median for ungrouped frequency distribution.
iv. Define marginal distribution.
v. State Karl Pearson's coefficient of Skewness.

Q.2) Attempt any TWO **(20M)**

a) What is statistics? Write importance of statistics? **(10M)**
b) What is ordinal scale? Write characteristics of ordinal scale? **(10M)**
c) What is qualitative data and its types? Explain them? **(10M)**

Q.3) Attempt any TWO **(20M)**

a) Find mean, median, mode for the following data. **(10M)**

Weight	30-40	40-50	50-60	60-70	70-80
No. of Students	3	5	12	20	10

b) i. The average marks of three group of students containing 70, 50, 30 students are 50, 55 and 65 respectively . Calculate average marks of all 150 students taken together. **(5M)**

ii. If a and b are any two positive numbers then prove that $GM = \sqrt{AM \times HM}$ **(5M)**

c) Find Q_1, D_6, P_{65} from the following data: **(10M)**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	7	12	18	22	25	17	9

Q.4) Attempt any TWO **(20M)**

a) Find i. Mean Deviation about mean (M.D) ii. Standard Deviation & variance iii. Coefficient of variation for the following data: **(10M)**

C.I	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Freuency	8	14	18	25	15	14	6

b) i. Calculate Karl Pearson's coefficient of skewness for the following data **(5M)**

Marks	0-20	20-40	40-60	60-80	80-100
No.of students	5	12	32	40	11

ii. Prove that the Bowley's coefficient of skewness lies between -1 and 1. **(5M)**

c) i. State the relation between raw and central moment of a distribution for first four central moments. **(5M)**

ii. Write the merits and demerits of range. **(5M)**

Q.5) Attempt any TWO **(20M)**

a) i. Define population and its type? **(5M)**

ii. Define Interval scale and Write characteristics of interval scale? **(5M)**

b) i. Explain procedure to draw histogram for a data. **(5M)**

ii. Define geometric mean and state its merits and demerits. **(5M)**

c) i. What are the requisites of a good measure of dispersion. **(5M)**

ii. For frequency distribution Bowley's coefficient of skewness is 0.6. The sum of first and third quartiles is 100 and median is 38. Find two quartiles. **(5M)**

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