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B.C.A. (Part - II) (Semester - III) Examination, November - 2017
COMPUTER ORIENTED STATISTICAL METHODS (Paper - 305)

Sub. Code : 63400**Day and Date : Thursday, 02 - 11 - 2017****Total Marks : 80****Time : 10.30 a.m. to 01.30 p.m.**

- Instructions :**
- 1) Question No. 8 is compulsory.
 - 2) Attempt any four questions from Question number 1 to 7.
 - 3) Figures to the right indicate full marks.
 - 4) Use of non programmable calculator is allowed.
 - 5) Graph paper will be supplied on request.

Q1) a) Explain:

- i) Primary data and Secondary data.
- ii) Qualitative data and Quantitative data.

- b) Define Mean and Mode. State the empirical relation between mean, median and mode. Use it to estimate mode of the distribution whose mean is 42.68 and median is 58.92.

[8 + 8]**Q2) a) Describe the method of moving averages in time series.**

- b) Explain Pie-diagram. Following data represents the number of students enrolled for BCA course in a college:

Classes	BCA-I	BCA-II	BCA-III
No. of Students	70	65	45

Draw a Pie-diagram for the above data.

[8 + 8]**P.T.O.**

- Q3) a)** Two samples of sizes 40 and 50 have same mean 25 but different standard deviations 19 and 18 respectively. Find mean and S.D. of the combined group.

- b)** Define Time Series. And state its components.

Find 3-yearly moving averages from the following data.

Year	1	2	3	4	5	6	7	8	9	10
Sales in lac	4	7	10	12	10	15	20	22	23	22

[8 + 8]

- Q4) a)** Explain in brief stratified random sampling. A sample of size 500 is to be drawn from a population of 10,000 units. Which is divided into four strata of sizes 1500, 2500, 4000, 2000. Find the sample size from each stratum by stratified random sampling with proportional allocation.

- b)** Define Rank correlation coefficient. Compute the rank correlation coefficient between sales and advertisement expenses in thousands of Rs. from the following data.

Sales	90	85	68	75	82	80	95	70
Advertisement	7	5	2	3	4	5	8	1

Comment on your result.

[8 + 8]

- Q5) a)** State the requirements of a good measure of central tendency. Find median and mode for the following data.

Class	10-20	20-30	30-40	40-50	50-60
Frequency	7	9	15	11	8

- b)** State the relation between correlation coefficient and regression coefficients and verify them by using following data.

X	2	3	4	7	6
Y	10	7	3	1	2

[8 + 8]

Q6) a) Give meaning of Dispersion. Distinguish between absolute measure of dispersion and relative measure of dispersion.

b) Interpret if

- i) $r = +1$ ii) $r = -1$ iii) $r = 0$.

Where r is correlation coefficient. The equations of two regression line are $10Y = X + 17$, $X = 5Y - 7$.

Find

I) Mean of X and Y . II) Regression coefficients.

III) Correlation coefficient between X and Y .

[8 + 8]

Q7) a) State any two properties of regression coefficients. From 10 observations on Price (X) and Supply (Y) of a commodity, the following data were obtained.

$$\sum X = 130, \sum Y = 220, \sum X^2 = 2288, \sum XY = 3467.$$

Compute the equation of line of regression of supply on price and estimate the supply when price is 16 units.

b) Define S.D. and its coefficient. Calculate S.D. and coefficient of S.D. for the following data.

Value (x)	7	8	9	10	11	12	13
Frequency (f)	4	6	9	12	9	6	4

[8 + 8]

Q8) a) Explain seasonal variation in time series. Find the progressive averages from the following data.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Profit	213	227	212	250	270	230	175	190	200

b) State merits and demerits of mean. Find mean and upper quartile from the following data.

38, 34, 39, 35, 32, 31, 37, 30, 48

[8 + 8]

