

Seat No.	
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**B.C.A. (Part - II) (Semester - III) Examination, November - 2015**  
**COMPUTER ORIENTED STATISTICAL METHODS (Paper - 305)**  
**Sub. Code : 63400**

Day and Date : Wednesday, 18 - 11 - 2015

Total Marks : 80

Time : 03.00 p.m. to 6.00 p.m.

- Instructions:**
- 1) Question number 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)** Define statistics. Explain scope of statistics:

- b) Explain seasonal variation in time series. Find the progressive averages from the following data.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Profit	213	227	212	250	270	230	175	190	200

[16]

- Q2) a)** Give in brief the construction of a less than ogive curve. Draw a less than ogive curve from the data given below and hence determine median.

Age(in years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
No.of workers	18	32	45	60	50	36	25	14

- b) Define combined mean for two groups. Two samples of sizes 40 and 50 have same mean 50 but different standard deviations 19 and 18 respectively. Find mean and S.D. for the combined group.

[16]

- Q3) a)** Explain the meaning of variability calculate a suitable measure of dispersion (absolute) for the following data.

Age in years	Below 20	20-30	30-40	40-50	50 and above
No. of workers	2	10	28	20	12

- b) Define the terms correlation and correlation coefficient. Obtain coefficient of correlation between x and y from the following data.

x	10	9	7	5	6	2
y	3	4	10	13	23	8

[16]

- Q4) a)** Explain sampling method and census method. State advantages of sampling method over census method.

- b) Define mean and upper quartile. Find mean, median and upper quartile from the following data.

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

[16]

- Q5) a)** Define S.D. and its coefficient. calculate S.D. for the following data.

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

Also find coefficient of S.D.

- b) Interpret if (i)  $r = +1$ , (ii)  $r = -1$ , (iii)  $r = 0$ , where  $r$  is correlation coefficient. The equations of two regression lines are  $10y = x + 17$ ,  $x = 5y - 7$ . Find (i) mean of  $x$  and  $y$  (ii) regression coefficients (iii) correlation coefficient between  $x$  and  $y$ .

[16]

- Q6) a)** State any two properties of regression coefficients. From 10 observations an 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)** The following data gives the sales of a firm. Fit a straight line trend by the method of least squares and obtain the trend values:

Year	2009	2010	2011	2012	2013
Sales ('000' units)	270	285	295	315	330

[16]

- Q7) a)** Describe the method of moving averages in time series.
- b)** Define the terms: frequency and frequency distribution. The following data give the record of wages in Rs. of 20 workers. prepare a frequency distribution by taking an interval of Rs. 15.

42, 26, 45, 68, 52, 46, 94, 35, 85, 75, 72, 24, 62, 36, 45, 62, 63, 70, 63, 45

[16]

- Q8) a)** State the merits and demerits of A.M. using the relation between mean, median and mode, find the mode of the distribution whose mean is 26.8 and median is 27.6.

- b)** Define rank correlation coefficient calculate rank correlation coefficient from the following data.

Marks in Mathematics	41	43	45	34	36	40
Marks in Statistics	46	43	44	39	40	43

[16]

