HB-3540

Second Year B. C. A. (Sem. III) Examination
March/April – 2018
301 : Statistical Methods

Time :   Hours]   [Total Marks : **70**

Instructions :

(1)

(2)   Attempt all questions.

(3)   Figures to right indicate full marks.

(4)   Mention your options clearly.

1   Do as directed : (any seven)   14

(1)   If mean = 80, mode = 28.5 and C.V = 30 then median = _____.

(2)   Compute mean from the following data :
      28, 36, 35, 40, 22, 38

(3)   Value of co-relation coefficient of two variables lies between _____ and _____.

(4)   Define : Standard deviation, variance.

(5)   If $n = 10$, $\sum x = 60$, $\sum x^2 = 1000$, then find standard deviation.

(6)   Find the variance of the following data :
      12, 15, 14, 9, 16

(7)   A regression equation given by $2x + 4y = 18$, if $y = 2$ then find x.

(8)   What is meant by "Correlation" ? Distinguish between positive, negative and zero correlation.

HB-3540]   1   [Contd.....

(9) $b_{yx} = 1.17$, $S_x^2 : S_y^2 = 9 : 81$ find r and b_{xy}.

(10) If two variables are having ranks in reverse order. write the value of r.

2 Attempt any two :   14

   (a) Calculate arithmetic mean of following frequency distribution.

Class	50-59	40-49	30-39	20-29	10-19	0-9
Frequency	1	3	8	10	15	3

   (b) Following is frequency distribution of weight in lbs and no. of persons. If mean of the frequency distribution is 122.5 lbs calculate the missing frequency.

Weight(lbs)	100-110	110-120	120-130	130-140	140-150	150-160
No. of Persons	100	130	72	20	?	50

   (c) Find mode of the following frequency distribution :

Class	0-5	5-10	10-15	15-20	20-25	25-30
Frequency	2	4	4	6	5	3

3 Attempt (any two)   14

   (a) Compute Q.D. and coefficient of Q.D. from the following data :

Profit (Rs. lakhs)	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40
No. of Companies	6	10	18	30	15	12	10	6	2

   (b) The frequency distribution of age of 30 women committing suicide is as follows. Calculate the mean deviation from mean and coefficient of mean deviation :

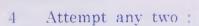| Age (yrs)	15-19	20-24	25-29	30-34	35-39
No. of Women	3	7	12	6	2

(c) Calculate coefficient of standard deviation and coefficient of variation from the following distribution of marks :

Marks	1-3	3-5	5-7	7-9
No. of students	40	30	20	10

4 Attempt any two :   14

(a) Calculate correlation coefficient from the following data :

Wages (in Rs.)	100	101	102	102	100	99	97	98	96	95
Cost of living index	98	99	99	97	95	92	95	94	90	91

(b) Rank correlation coefficient between 10 pairs of X and Y was obtained as 0.6. Later on, it was noticed that one of the difference of marks was taken as 4 instead of 8, then find correct rank correlation coefficient.

(c) Obtain equations of regression line of Y on X and X on Y, using the data given below :

X	1	2	3	4	10	-3	-1	9
Y	10	8	6	4	0	4	5	-1

5 Attempt any two :   14

(a) For two variables x and y, following results were obtained :

$\bar{x} = 20$, $\bar{y} = 30$, $N = 10$, $\sum x^2 = 6360$, $\sum y^2 = 9860$, $\sum xy$ 5900. Obtain two regression lines.

(b) Information about advertisement and sales of some consumer product is given below :

	Advertisement expenditure (x) (Rs. crores)	Sales (y) (Rs. crores)
Mean	20	120
S.D.	5	25

Correlation coefficient = 0.8

(1) Calculate the two regression lines.

(2) Find the likely sales when advertisement expenditure in Rs. 25 crores.

(3) What should be the stipulated adv. budget if the company wants to attain sales target of Rs. 150 crores ?

(c) In order to find the correlation coefficient between two variables X and Y from 12 pairs of observation the following results are available :

$$\sum x = 30, \quad \sum y = 5, \quad \sum x^2 = 670, \quad \sum y^2 = 285, \quad \sum xy = 344.$$

later it was found that one particular pair of observation (10, 14) was wrongly taken as (11, 4). Find the correct value of the correlation coefficient.