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KA-3787-R

Second Year B.C.A. (Sem. III) Examination

October/November – 2012

Statistical Methods

(New Course)

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **SECOND YEAR B.C.A. (SEM. III)**

Name of the Subject :

☛ **STATISTICAL METHODS (NEW)**

☛ Subject Code No. : **3 7 8 7** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Attempt **all** questions.

(3) Figures to **right** indicate **full** marks.

(4) Mention your options **clearly**.

1 Do as directed : **14**

(i) If $\bar{X} - M = 3$ and $Z = 2$ then find mean and median.

(ii) A regression equation given by $X + 5Y = 10$. If $X = 5$ find Y.

(iii) The score of student in test, out of 100 marks were as follows :

28, 31, 37, 45, 80, 88, 78, 68, 58, 82.

Find variance.

(iv) The value of correlation coefficient is between _____ and _____.

(v) Two regression lines intersect each other at (_____ , _____).

(vi) What is measure of central tendency ?

(vii) If $b_{yx} = 0.52$ then $b_{xy} = 2.5$. Is it true ?

(viii) Find the mode of the following numbers.

3, 5, 2, 6, 5, 9, 5, 8, 6.

(ix) The standard deviation of a set of 50 observations is 8. If each observation is multiplied by 2, then the new value of standard deviation is _____.

(x) If two regression lines are $x+3y-7=0$ and $2x+5y=12$, then $\bar{X}$ and $\bar{Y}$ are _____ and _____.

(xi) In rank correlation if $\sum d^2 = 0$, $r =$ _____.

(xii) The standard deviation of 6,6,6,6 is _____.

(xiii) If the sum of square of rank difference of 7 pairs are 62 then find coefficient of correlation.

(xiv) Why there are two regression lines ?

2 Attempt any two : **14**

(a) Define Mean and Median and compute mean and median from the following data.

Class	10–19	20–29	30–39	40–49	50–59	60–69
Frequency	12	19	31	27	16	08

(b) Find standard deviation and mean deviation from the following data.

X	15	30	45	60	75	90	105	120
Y	12	30	65	107	157	202	222	230

(c) The median of the following incomplete table is 9.20. Find the missing frequencies and the mean of the complete table.

Class interval	3-5	5-7	7-9	9-11	11-13	13-15	Total
Frequency	6	?	18	20	?	10	80

3 Attempt any two : **14**

(a) The arithmetic mean of runs scored by three batsmen Sachin, Rahul and Laxman in the same series of 10 innings are 50, 48 and 12 respectively. The standard deviation of their runs are 15, 12 and 2 respectively. Who is the most consistent of three ?

(b) Defind coefficient of variation. Evaluate it for given data.

Age	20-25	25-30	30-35	35-40	40-45	45-50
No. of person	170	110	80	45	40	35

(c) Two regression lines are

$x+2y-5=0$ and

$2x+3y-8=0$ and

$S_x^2=12$, then find $\bar{x}, \bar{y}, S_y^2$ and r.

4 Attempt any two : **14**

(a) Obtain two regression equations from the following data and find the value of x when $y=25$ and $r=0.8$.

	x	y
Mean	25.5	40
S.D.	4.5	6

(b) For a group of 200 candidates the mean and S.D. were found to be 40 and 15 respectively. Later on it was found that the score 43 was misread at 34. Find correct mean and S.D.

(c) Find correlation coefficient between X and Y.

X	78	89	96	69	59	79	68	61
Y	125	137	156	112	107	136	123	108

5 Attempt any two : **14**

(a) Find the Rank correlation coefficient of following data.

x	3	5	8	4	7	10	2	1	6	9
y	6	4	9	8	1	2	3	10	5	7

(b) Calculate the coefficient correlation between the ages of 100 mothers and daughters from the following data :

Age of Mothers (*in years*)	*Age of Daughters* (*in Years*)					
	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	*Total*
15 – 25	6	3	–	–	–	9
25 – 35	3	16	10	–	–	29
35 – 45	–	10	15	7	–	32
45 – 55	–	–	7	10	4	21
55 – 65	–	–	–	4	5	9
Total	9	29	32	21	09	

(c) Obtain equation of two regression lines.

x	2	8	10	–2	5	–4
y	3	2	5	10	–2	–3