Roll No…… Total Pages: 3

1905-R

BCA/M-17

COMPUTER ORIENTED STATICAL METHODS

Paper: BCA-245

Time: Three Hours Maximum Marks: 80

Note: Attempt five questions in which Q. No. 1 is compulsory. All questions carry equal marks. Select at least one question from each Unit.

Compulsory Question

Unit-I

1. (a) Define Quartile Deviation.
   (b) Define Continuous Random Variables.
   (c) Give two characteristics for an ideal measure of central tendency.
   (d) Give two demerits of Harmonic mean.
   (e) Calculate the coefficient of correlation between x and y. When $\sum y=60$, $\sum x=60$, $\sum x2=400$, $\sum y2=580$, $\sum xy=305$, n=10.

   (f) Define two differences between correlation and regression.
   (g) Find the regression coefficient of y on x for the following data : Ex=60, Ey=105, Ex2=800, Ey2=2000, Exy=1200, n=10.
   (h) Examine the validity of the following data : In an ANOVA table: Total sum of squares=25, between sum of squares=16 and within sum of squares=7.

Unit-II

2. (a) Form an ordinary frequency table :

Height (in ft.)	No. of trees	Height (in ft.)	No. of trees
Below 7	26	Below 35	216
Below 14	57	Below 42	287
Below 21	92	Below 49	341
Below 28	134	Below 56	360

   (b) Calculate the AM from the following data :

Marks	:	0-10	10-20	20-30	30-40	40-50
No. of Students	:	12	18	27	20	17

3. (a) Find the mean deviation about the mean of the marks of 10 students of Sections A and B as given:

Section A	:	7	10	12	13	15	20	21	27	30	35

Section B : 15 15 15 15 18 19 21 22 25 25

(b) Calculate standard deviation and its coefficient of variation from the following:

Wages upto (in Rs.)	:	10	20	30	40	50	60	70	80
No. of Persons	:	12	30	65	107	157	202	220	230

Unit-III

4. (a) Two cards are drawn successively with replacement from a well shuffled Pack of 52 cards. Find the mean and SD of the number of kings.

(b) An unbiased coin is tossed 10 times. Find by using binomial distribution, the probability of getting :

(i) exactly 6 heads
(ii) at least 6 heads
(iii) atmost 6 heads
(iv) at least 3 heads.

5. (a) The marks obtained by 8 student in Mathematics and Statistics in a test are as follows :

(15, 11), (12, 4) (16, 8), (10, 15), (12, 9), (10, 15), (16, 17), (20, 14)

(b) Calculate the coefficient of rank correlation from the following data :

X	:	4	20	6	13	9	13	6	19	25	15
Y	:	16	65	9	48	24	33	16	57	40	16

Unit-IV

6. (a) Find the equations of lines of regressions from the data given below :

X	:	1	3	5	6	7	8
Y	:	12	8	6	9	11	8

(b) For the given data:

		x series	y series
Mean	:	18	100
S.D.	:	14	20

Coefficient of correlation between x and y series is 0.8. Find the most probable values of y, if x is 70 and most probable value of x, if y is 90

7. (a) Obtain the least square straight line fit to the given data regarding x as the independent variable :

x	:	1	2	3	4	5	6
y	:	1200	900	600	200	110	50

(b) Find the least square approximation of second degree for the discrete data:

x	:	-2	-1	0	1	2
y	:	15	1	1	3	19

Unit-V

8. (a) Find the value of Chi-square for the following :

Class	A	B	C	D	E
Observed frequency	8	29	44	15	4
Expected frequency	7	24	38	24	7

(b) Three different machines are used for the production. On the basis of the outputs, test whether the machines are equally effective or not.

	Output of machines			
I	10	5	11	10
II	9	7	5	6
III	20	16	10	14

9. (a) A population consists of three numbers 3, 6, 9. Consider all possible sample of size two which can be drawn with replacement from the population. Calculate the standard error of the sample means

(b) Define errors in testing of hypothesis. Also give their types.