Roll No. ..... Total Pages : 05

BCA/M-23 1874

COMPUTER ORIENTED STATISTICAL METHOD

BCA-245

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) Differentiate an ungrouped and a grouped frequency table. 4

   (b) Write normal distribution formula and calculate its mean. 4

   (c) Define a linear regression formula and derive its equations. 4

   (d) What is the significance of Chi-square Test ? Write its formula. 4

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Unit I

2. Find Mean, Mode and Median for data given below : **16**

Class	Frequency
0-3	20
3-6	12
6-9	17
9-12	16
12-15	3

3. (a) For the following distribution :

X	F
0-10	15
10-20	23
20-30	35
30-40	49
40-50	32
50-60	28
60-70	12
70-80	6

Calculate first four moments u_1, u_2, u_3 and u_4 about arithmetic mean $\bar{X}$? **8**

(b) Find standard deviation and coefficient of variation for following data : **8**

X	F
1	6
2	12
3	18

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4	26
5	16
6	10
7	8

Unit II

4. (a) Calculate arithmetic mean and variance of Binomial Distribution. 8

   (b) Differentiate discrete random variable and continuous random variable. 8

5. (a) Calculate Karl Pearson's correlation coefficient between student Attendance and their score : 8

Average attendance (in %)	Score (in %)
60	39
65	34
70	52
75	57
80	56
85	67
90	69

   (b) Ten students secured the following marks in statistics and maths :

Statistics	Mathematics
31	41
45	47

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39	27
48	38
24	29
33	37
42	40
36	30
29	35
41	39

Compute their ranks in two subjects and coefficient of rank correlation. 8

Unit III

6. (a) Find the equation of lines of regressions : 8

X	:	1	3	5	6	7	8
Y	:	14	9	7	10	13	6

(b) Find the standard error of estimate of y on x : 8

x	:	1	2	3	4	5
y	:	10	9	11	13	12

7. Fit a second degree parabola $Y = a + bx + cx^2$ for the following data : 16

Y	:	0	1	2	3	4
X	:	0	1	4	9	12

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Unit IV

8. (a) The theory predicts the proportion of beans in the four groups A,B,C and D should be 9 : 3 : 3 : 1. In an experiment with 1600 beans the nos. in four groups were 892, 310, 290, 108. Does the experiment result support the theory ? (Value of Chi-square for 3 d.f. at 5% level of significance 7.81). 8

(b) What is a Student's *t*-distribution ? Write its formula and uses. 8

9. Write notes on the following :

(a) Sampling method and rule for sample size. 8

(b) One-way classification of data with an example. 8

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