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BCA/M-23

1874

COMPUTER ORIENTED STATISTICAL METHOD

BCA-245

me : 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

Unit I

2. Find Mean, Mode and Median for data given bel

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 $\bar{X}$?

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

X	F
1	6
2	12
3	18

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

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

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