Total No. of Questions : 9] [Total No. of Printed Pages : 7

(1109)

BCA UG (CBCS) RUSA Vth Semester Examination

3609

COMPUTER ORIENTED STATISTICAL METHODS

BCA–0505

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

Note :– Section I is compulsory. Attempt *one* question from each part of Section II. Marks are indicated against the question.

Section–I

1. (A) Do as directed the following questions :

(i) Arithmetic Mean is always the best measure of Central Tendency.(True/False)

(ii) Does the following data have model marks :

Marks : 25, 32, 59, 37, 17, 22, 28, 33, 40, 45. (Yes/No)

(iii) How many quadrants are there on a graph ?

(a) One (b) Two

(c) Four (d) Severn

(Choose the correct)

(iv) Ogives can be helpful in locating graphically the :

(a) Mode

(b) Mean

(c) Median

(d) None of these

(Choose the correct)

(v) Which of the following is the best measure of dispersion ?

(a) Range

(b) Quartile deviation

(c) Mean deviation

(d) Standard deviation

(Choose the correct)

(vi) What type of correlation will be there in the following data ?

X	:	10	15	18	21
Y	:	20	22	24	26

(a) Positive (b) Negative

(c) Zero (d) None of these

(Choose the correct)

(vii) A bag contains 6 white balls, 9 black balls. What is the probability of drawing a black ball ?

(viii) Let P be the probability function on $S = \{a_1, a_2, a_3\}$. Find $P(a_1)$ if $P(a_2) = \frac{1}{3}$ and $P(a_3) = \frac{1}{4}$.

(ix) In a random throw of two dice, what is the expectation of the product of the points on them ?

(x) If X and Y are two independent random variables then what is the value of variance of (X – Y) ?

1×10=1

(B) (i) Write a short note on merits and demerits of median.

(ii) Find the standard deviation of the following data :

48, 43, 65, 57, 31, 60, 37, 48, 59, 78.

(iii) Discuss the merits and limitations of Rank Correlation Coefficient.

(iv) What is mathematical expectation and what are its properties ? 4×5=20

Section–II

(Part–A)

2. Calculate Mean, Median and Mode of the following series :

Marks below	20	30	40	50	60	70	80
No. of Students	5	15	42	60	72	78	80

10

3. Find the variance of the following distribution :

X	90–105	105–115	115–125	125–135	135–145
f	19	23	36	70	52

10

(Part–B)

4. (a) A committee of three is to be chosen from a group of 4 men and 5 women. If the selection is made at random, find the probability that :

(i) All the three are men

(ii) Two are men

(b) A pair of dice is rolled. If the sum on the two dice is 9, find the probability that one of the dice showed 3. 2×5=10

5. (a) 'n' cadets have to stand in a row. If all permutations are equally likely, find the probability that two particular cadets stand side by side.

(b) Two cards are drawn from a well shuffled pack of playing cards. Determine the probability that both are aces. 2×5=

(Part–C)

6. (a) Calculate the expected value of X, the sum of scores when two dice are rolled.

(b) Calculate the variance for a random variable whose probability distribution is as follows :

x :	4	5	6	8
P :	0.1	0.3	0.4	0.2

$2\times5=10$

7. A box contains 8 items of which two are defective. A man selects three items at random. Find the expected value of defective items he has drawn. 10

(Part–D)

8. Calculate the coefficient of correlation for the following data :

(1, 2), (2, 4), (3, 8), (4, 7), (5, 10), (6, 5), (7, 14), (8, 16) (9, 2), (10, 20). 10

9. Find Karl Pearson's correlation coefficient for the data given below :

Independent variable	Dependent variable
3	7
7	12
5	8
4	8
6	10
8	13
2	5
7	10

10