



C20-CCP-503

7627

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER / NOVEMBER—2023

DCCP – FIFTH SEMESTER EXAMINATION

QUANTITATIVE TECHNIQUES—II

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the meaning of correlation.
2. List the types of correlation.
3. What is the probable error, if $r = 0.9$ and $N=100$.
4. Mention any three differences between correlation and regression.
5. Define (a) Set and (b) Equal set.
6. If $A = \{1, 2, 3, 4\}$ and $B = \{3, 5, 6\}$, find $A \cup B$.
7. Draw Venn diagram for $A \cap B$.
8. Find 18th term of the series 2, 4, 6, 8.... in AP.
9. State the meaning of Diagonal Matrix?
10. Find transpose of the following Matrix $\begin{pmatrix} 5 & -2 & 1 \\ 9 & 7 & 5 \end{pmatrix}$

PART—B

8×5=40

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Find Karl Person's coefficient of correlation from the following :

X	67	69	71	75	85	93	87
Y	95	80	87	80	79	75	80

(OR)

(b) Calculate Spearman's rank correlation from the given data :

X	29	28	17	15	20	26	27	25
Y	31	32	25	29	42	15	43	32

12. (a) Find regression equation of the regression find X on Y. Obtain the best estimate of X when Y = 60.

X	10	25	34	42	37	35	36
Y	56	64	63	58	73	75	82

(OR)

(b) From the data below, calculate the probable Value of Y when X is 15.5.

	Mean	SD
X	10.7	8.1
Y	20.4	5.6
r = 0.52		

13. (a) If $A = \{1, 2, 3, 4\}$, $B = \{3, 5, 6\}$ and $C = \{4, 5, 6\}$. Verify
 $(A \cup B) \cup C = A \cup (B \cup C)$

(OR)

(b) In a market research survey, 500 consumers were interviewed. It was found that 350 consumers liked product A and 275 consumers liked product B. What is least number that must have liked both A and B?

14. (a) In Arithmetic Progression, given $d=28$, $s=144$ and there are total 9 terms. Find the first term.

(OR)

(b) Find the series in Geometric Progression, whose second term is 162 and Seventh term is $64/3$.

15. (a) If $A = \begin{pmatrix} 6 & 7 \\ 8 & 9 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$. Find AB and BA.

(OR)

(b) Solve the following equation by applying Cramer's Rule.

$$3x - 2y = 13$$

$$4x + y = 21$$

PART—C

10×1=10

- Instructions :**
- (1) Answer the following question.
 - (2) The question carries **ten** marks.
 - (3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Find inverse of the following matrix :

$$A = \begin{pmatrix} 1 & 3 & 4 \\ 2 & 4 & 5 \\ 3 & 1 & 2 \end{pmatrix}$$

★★★