

Vidya Vikas Mandal's
Ramacrisna Madeva Salgaocar Higher Secondary School
Margao Goa

Std: XII VOC - CT
Date: 07/08/2024

Mid Term Exam August, 2024
Subject : Mathematics (voc)

Duration: 1 hr.
Marks:20

Instructions : 1) All questions are compulsory.
3) Write the number of questions clearly

Section A

Question numbers from 1 to 2 carry 1 mark each.

1. Construct 3×2 matrix $A = [a_{ij}]$ such that $[a_{ij}] = i \times j$
2. Construct forward difference table for the following data.

X	3	6	9	12	15	18
Y	7	15	23	31	39	47

Section B

Question numbers from 3 to 7 carry 2 marks each.

3. Construct the backward difference table for the following data.

X	1	5	9	13	17	21
Y	1	3	6	10	15	21

Hence identify $\nabla^2 y_9$, $\nabla^3 y_{17}$

4. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 2 \\ -1 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 & 2 \\ 4 & -1 & -3 \end{bmatrix}$ find AB

5. Find a, b, c if

$$\begin{bmatrix} c+4 & a+b \\ 2a+b & 3+c \end{bmatrix} = \begin{bmatrix} 6 & 3 \\ 4 & 5 \end{bmatrix}$$

6. Three coins are tossed, find the probability of getting at least two heads up
7. From a pack of 52 well shuffled cards, 3 cards are drawn at random, find the probability that card drawn contain two kings and one ace.

Section C

Question numbers 8 and 9 carry 4 marks each.

8. Find the coefficient of correlation for the following data.

X	1	3	5	7	9
Y	6	5	4	3	2

9. Solve the following equations using matrix method.

$$4x + 2y - z = 3, \quad 2y - x - z = 8, \quad 4x - y + 2z = -16$$