Bachelor of Vocation in Pottery & Ceramic Examination, 2017

Semester – II

Paper – B.Voc – II/03

Applied Science - II

Time: Three Hours **Full Marks:80**

Questions are of value as indicated in the margin.

Attempt **any eight (8)** questions from the followings: - $8 \times 10 = 80$

1. State the different types of Matrix with example.

2. Find the value of $\begin{vmatrix} 0 & 2 & -3 \\ 1 & 2 & 4 \\ -2 & 3 & 2 \end{vmatrix} \times \begin{vmatrix} 2 & 0 & -3 \\ 3 & 1 & 0 \\ 0 & 4 & -2 \end{vmatrix}$

3. Find the value of $\begin{bmatrix} 2 & -3 \\ 4 & 5 \\ -6 & 0 \end{bmatrix} \times \begin{bmatrix} 3 & -2 & 0 \\ 5 & 4 & 1 \end{bmatrix}$

4. Solve the following equation using Cramer's rule:
   $3x + y + z = 10$
   $x + y - z = 0$
   $5x - 9y = 1$

5. Prove that $\text{Sec}^2A = 1 + \tan^2A$ and from that find the value of A, if $\text{Sec}^2A - 1 = 1$

6. A contractor plans to install two slides for the children to play in a park. For the children below the age of 5 years, she prefers to have a slide whose top is at a height of 1.5 m, and is inclined at an angle of 30° to the ground, whereas for elder children, she wants to have a steep slide at a height of 3m, and inclined at an angle of 60° to the ground. What should be the length of the slide in each case?

7. (i) If $\tan\theta = \frac{3}{5}$, Find the value of $\sqrt{\frac{1-Sin\theta}{1+Sin\theta}}$

   (ii) If $x \text{ Sin } 45^0 \text{ Cos } 45^0 \tan 60^0 = \tan^2 45^0 - \text{Cos } 60^0$, Find the value of x.

8. Find the Median and Standard deviation from the following data,
   49, 63,46,59,65,52,60,54

9. The following data refer to the dividend (%) paid by two companies A and B over the last 7 years.

A:	4,	8,	4,	15,	10,	11,	9
B:	12,	8,	3,	15,	6,	4,	10

   Calculate the coefficients of variation and comment.

10. Write short notes on **any two** of the followings: -

    (i) Mode (ii) Median (iii) Coefficient of variation (C.V %)

    (iv) Standard Deviation