SRI KRISHNA COACHING CENTRE RMM

STD : X **UNIT TEST THREE** **MARKS: 50**

TIME : 1.15MIN **ALGEBRA** **EXAM NO :**

I CHOOSE THE CORRECT ANSWERE 4×1=4

1) If number of columns and rows are not equal in a matrix then it is said to be a

(1) diagonal matrix (2) rectangular matrix

(3) square matrix (4) identity matrix

2) Graph of a linear polynomial is a

(1) straight line (2) circle (3) parabola (4) hyperbola

3) If A is a 2 × 3 matrix and B is a 3 × 4 matrix, how many columns does AB have?

(1) 3 (2) 4 (3) 2 (4) 5

4) Which one of the following is a root of the equation

$2x^4 - 5x^3 - 3x^2 + 13x + 9 = 0$

(1) 1 (2) -1 (3) 2 (4) 0

II ANSWERE ANY FOUR OF THE FOLLOWING QUESTIONS QUESTION NO.9 IS COMPULSORY 4×2=8

5) Simplify : $\frac{x+2}{4y} \div \frac{x^2-x-6}{12y^2}$.

6) Solve $2x^2 - 3x - 3 = 0$ by formula method

7) The product of Kumaran's age (in years) two years ago and his age four years from now is one more than twice his present age. What is his present age?

8) Solve $\begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$

9) When are two matrices said to be equal?

III ANSWERE ANY SIX OF THE FOLLOWING QUESTIONS QUESTION NO.16 IS COMPULSORY 6×5=30

10) If – 4 is a root of the equation $x^2 + px - 4 = 0$ and if the equation $x^2 + px + q = 0$ has equal roots, find the values of p and q

11) If $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & -1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ - & 4 \\ 0 & 2 \end{bmatrix}$ show that $(AB)^T = (AB)^T$

12) Solve $pqx^2 - (p+q)^2 x + (p+q)^2 = 0$ by formula method

13) If $9x^4 + 12x^3 + 28x^2 + ax + b$ is a perfect square, find the values of a and b

14) Find the GCD of the given polynomials $x^4 + 3x^3 - x - 3$, $x^3 + x^2 - 5x + 3$

15) The sum of the digits of a three-digit number is 11. If the digits are reversed, the new number is 46 more than five times the former number. If the hundreds digit plus twice the tens digit is equal to the units digit, then find the original three digit number?

16) A bus covers a distance of 90km at a uniform speed. Had the speed been 15 km/ hour more it would have taken 30 minutes less for the journey. Find the original speed of the bus

IV ANSWERE ANY FOUR OF THE FOLLOWING QUESTIONS 1× 8=8

17) Draw the graph of $y = x^2 - 4$ and hence solve $x^2 - x - 12 = 0$ (OR)

A bus is travelling at a uniform speed of 50km/hr. Draw the distance- time graph and hence find (i) the constant of variation (ii) how for will it travel in $1\frac{1}{2}$ hr (iii) the time required to cover a distance of 300km from the graph.