

Section A (All question carry one mark)

- 1) If $125^x = \frac{25}{5^x}$ Find the value of x.
- 2) Without actually calculating the cubes, find the value of $45^3 - 25^3 - 20^3$
- 3) The value of $1.999\dots$ in the form p/q , where p and q are integers and $q \neq 0$, is
- 4) Find the value of a, if $x - a$ is a factor of $x^3 - ax^2 + 2x + a - 1$
- 5) How many triangles can be drawn having its angles as 53° , 64° and 63° ?
Give reason for your answer
- 6) Find the coordinates of the point
 - (i) Which lies on x and y axes both.
 - (ii) Whose ordinate is -4 and which lies on y-axis.
 - (iii) Whose abscissa is 5 and which lies on x-axis

Section B (All questions Carry 2 Marks)

- 7) Find the value of a in the following: $\frac{6}{\sqrt{2}-2\sqrt{3}} = 3\sqrt{2} - a\sqrt{3}$
- 8) Plot the points (2,-2), (-4,4) and join them does the line pass through origin .

Section C (All questions carry 4 marks each)

- 9) If $a = \frac{3+\sqrt{5}}{2}$, then find the value of $a^2 + \frac{1}{a^2}$
- 10) If $(3x-2)$ is a factor of $3x^3 + x^2 - 20x - 12$ Find other factors

Section D (All questions carry 6 Marks each)

- 11) Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is divisible by $x^2 - 3x + 2$
- 12) Simplify $(2x - 5y)^3 - (2x + 5y)^3$