AMITY INTERNATIONAL SCHOOL, MAYUR VIHAR

PT-1 (SET A)

CLASS: IX

SUBJECT: MATHEMATICS

Time: 90 min **M.M: 40**

GENERAL INSTRUCTIONS:-

Section A- Q1 to Q10 carries 1 mark each

Section B- Q11 to Q13 carries 2 marks each.

Section C-Q14 to Q17 carries 3 marks each

Section D-Q18 to Q20 carries 4 markseach

Section A

Q1 What is the zero of the zero polynomial.

Q2 Find an irrational number between 2 and 2.5.

Q3 Find the factors of $1 - x^3$

Q4 Find the value of $(-\frac{1}{27})^{-\frac{2}{3}}$.

Q5 Find the coefficient of x in the product of $(x - 1) (1 - 2x)$.

Q6 Find the coordinates of the point which are at a distance of 3 units from the x-axis and 5 units from y-axis.

Q7 Write the mirror image of (4 , -3) about y-axis.

Q8 Find the area of triangle formed by the points A(0,1),B(0,5) and C(3,4) .

Q9 Express y in terms of x in equation $2x - 3y = 12$. Find the points where the lines represented by this equation cuts y-axis without plotting it on graph.

Q10 Express $-5 = x$ in the form of $ax + by + c = 0$ and indicate the values of a,b,c.

Section B

Q 11 Locate $\sqrt{17}$ on number line.

Q 12 If $x=2y+6$, then find the value of $x^3 - 8y^3 - 36xy - 216$.

or

If $2x + 3y = 13$ and $xy=6$.find the value of $8x^3 + 27y^3$.

Q13 Give geometric representation of $2x + 9 = 0$ as an equation : (i) in one variable (ii) in two variables. (Draw these on answer sheet only) /graph paper

Section C

Q14 Find values of a and b if $\frac{5+\sqrt{3}}{7-4\sqrt{3}} = 94a + 3\sqrt{3}b$.

Q15 Factorise :- $(x^2 - 3x)^2 - 8(x^2 - 3x) - 20$

or

Factorise $x^3 - 6x^2 + 11x - 6$ using factor theorem.

Q16 If the coordinates of a point n are (-2,9) which can also be expressed as $(1+ x, y^2)$ and $y > 0$, then find in which quadrant do the following points lie :- A(y , x),B (2,x), C (x^2 , y-1) , D(2x, -3y).

Q17 If $x = 3 + 2\sqrt{2}$, find the value of $\sqrt{x} - \frac{1}{\sqrt{x}}$

Section D

Q18 Shade the triangle formed by the graphs of $2x - y = 4$, $x + y = 2$ and the y axis. Write the coordinates of vertices of the triangle.

Q19 Prove: $\frac{a^{-1}}{a^{-1}+b^{-1}} + \frac{a^{-1}}{a^{-1}-b^{-1}} = \frac{2b^2}{(b^2-a^2)}$

or

Simplify :- $\frac{1}{\sqrt{5}+\sqrt{6}-\sqrt{2}}$

Q 20 The polynomial $x^3 + 2x^2 - 5ax + 7$when divided by $(x + 1)$ leaves a remainder 'p' and the polynomial $x^3 + ax^2 - 12x + 6$ are divided by (x-2) leaves remainder q. If $p - q = 20$, find value of a.

AMITY INTERNATIONAL SCHOOL, MAYUR VIHAR

PT- 1 (SET B)

CLASS: IX

SUBJECT: MATHEMATICS

Time: 90 min **M.M: 40**

GENERAL INSTRUCTIONS:-

Q1 to Q10 carries 1 mark each
Q11 to Q13 carries 2 marks each.
Q14 to Q17 carries 3 marks each
Q18 & Q20 carries 4 markseach.

Section A

Q1 What is the degree of the zero polynomial.

Q2 Find an irrational number between 1.5 and 3.5 .

Q3 Find the factors of $x^3 - 8$.

Q4 If $(2^3)^2 = 4^x$, then find the value of 3^x .

Q5 Find the coefficient of x^2 in the product of $(2 - 3x^2) (x^2 - 5)$.

Q6 Find the perpendicular distance of the point P(3, 4) from the y-axis.

Q7 Write the mirror image of (4 , -3) about x-axis.

Q8 Find the area of triangle formed by the points A(2,0),B(6,0) and C(4,6) .

Q9 Express x in terms of y in equation $2x - 3y = 12$. Find the points where the lines represented by this equation cuts x-axis without plotting it on graph.

Q10 Express $3 = y$ in the form of $ax + by + c = 0$ and indicate the values of a,b,c

Section B

Q11 Locate $\sqrt{26}$ on number line

Q12 If $2 = a + b$, then find the value of $a^3 + b^3 + 6ab - 8$.

or

Factorise :- $a^3 - b^3 + 1 + 3ab$

Q13 Give geometric representation of $2y + 7 = 0$ as an equation : (i) in one variable (ii) in two variables. (Draw these on answer sheet only) / graph paper

Section C

Q14 Find values of a and b if $\frac{3-\sqrt{5}}{3+2\sqrt{5}} = a\sqrt{5} - \frac{19}{11}b$.

Q15 Factorise :- $4(y^2 - 1)^2 - 15(y^2 - 1) - 4$

or

Factorise $2x^3 - 3x^2 - 17x + 30$ using factor theorem.

Q16 If the coordinates of a point n are (-2,9) which can also be expressed as $(1+ x , y^2)$ and $y > 0$, then find in which quadrant do the following points lie :- P(y , x),Q (2,x), R (x^2 , y-1) , S(2x, -3y).

Q17 If $x = 7 + 4\sqrt{3}$, find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$

Section D

Q18 Draw graphs of the equations : $x - y = 1$ and $2x + y = 8$. Shade the area bounded by these two lines and y-axis. Also determine its area.

Q19 Evaluate :- $\frac{15}{\sqrt{10}+\sqrt{20}-\sqrt{5}+\sqrt{40}-\sqrt{80}}$

or

If $x = \frac{(\sqrt{3}+\sqrt{2})}{(\sqrt{3}-\sqrt{2})}$ and $y = \frac{(\sqrt{3}-\sqrt{2})}{(\sqrt{3}+\sqrt{2})}$ find $x^2 + y^2 + xy$

Q 20 The polynomial $P(x) = kx^4 + 3x^3 + 7$ when divided by $(x - 2)$ leaves a remainder which is triple the remainder left by the polynomial $g(x) = 2x^3 + 17x + k$ when divided by $x - 1$.