



IDEAL INDIAN SCHOOL DOHA , QATAR
MODEL QUESTION PAPER PT 1 JUNE 2021
MATHEMATICS

Class : IX

Max. Marks : 40

Duration : 1.5 Hrs

General Instructions:

- This question paper contains two parts **A** and **B**. Both part **A** and **B** have internal choices.

Part - A:

- It consists of **TWO** sections – **I** and **II**
- Section **I** has **7** questions of **1** mark each. Internal choice is provided in 2 questions.
- Section **II** has **2** questions on Case Study. Each Case Study has **5** sub parts. An examinee is to attempt **any 4** out of **5** subparts.

Part - B:

- Question No **10** to **13** are Very Short Answer Type questions of **2** marks each.
- Question No **14** to **17** are Short Answer Type questions of **3** marks each.
- Question No **18** is Long Answer Type question of **5** marks.
- Internal choice is provided in **1** question of **2** marks, **1** question of **3** marks and **1** question of **5** marks.

PART A

SECTION I (Question no 1 to 7 carries 1 mark each)

1. Find the perpendicular distance of the point (-9,2) from Y axis.
2. Evaluate 99^3 using identity

OR

What is the degree of the polynomial $(x^5 - 3x)(x^2 - 2)$.

3. Find an irrational number between 1.3 and 1.4
4. Write the coordinate of a point on negative side of X axis at a distance of 5 units from origin.
5. Simplify $(64)^{-\frac{1}{3}} \times \sqrt[3]{64}$.

OR

Express 0.47777..... in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

6. Identify an irrational number among the following numbers.

- a) $\frac{5}{3}$ b) $\sqrt{5}$ c) $\sqrt{225}$ d) 6.32323232.....

7. Find the value of k, if $2x-1$ is a factor of the polynomial $6x^2 + kx - 2$.

SECTION II

All Case Study based questions are compulsory. Attempt any four sub parts of each question. Each subpart carries 1 mark.

Case Study based - 1

8. An algebraic expression in which the variables involved have only non-negative integral powers is called a polynomial. The part of a polynomial separated by '+' or '-' sign is called a term of the polynomial. Two friends started a business together. They decided to share their capitals depending upon a variable expenditure. The capital of the two partners together is given by the polynomial $3x^2 - x - 4$, which is the product of their individual share factors.

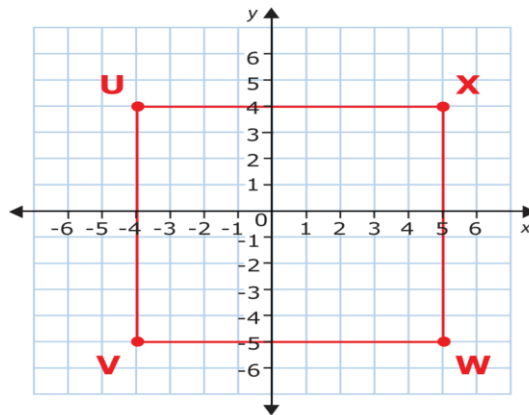
Then,

- i) The coefficient of x is,
a) 1 b) -1 c) -4 d) 2
- ii) The value of the polynomial at $x = -1$ is,
a) -8 b) -6 c) 0 d) -9
- iii) Identify the type of polynomial
a) Binomial b) linear c) cubic d) quadratic
- iv) The factors of the polynomial which gives each one's share is
a) $(4x-3)(x+1)$ b) $(3x-4)(x-1)$ c) $(3x-4)(x+1)$ d) $(4x+3)(x-1)$
- v) The remainder when the polynomial is divided by $(x-2)$ is
a) 6 b) 10 c) -14 d) -6



9. To locate a point in the cartesian plane, its perpendicular distances from X-axis and Y- axis are required, these distances are called coordinates of the point. Each point in cartesian plane has two coordinates, x-coordinate and y-coordinate.

Four students Udit, Varun, Wilson and Xavier were made to stand on the points U, V, W, X in a playground to play a game. If UVWX forms a square as shown in the figure then,



- i) The coordinates of the point Varun (V) stands is,
 - a) (-5, -4)
 - b) (-4, -5)
 - c) (5, -5)
 - d) (4, -4)
- ii) In which quadrant Udit(U) stands?
 - a) I
 - b) II
 - c) III
 - d) IV
- iii) The (abscissa of the point W) – (ordinate of the point V) is,
 - a) 0
 - b) 9
 - c) -10
 - d) 10
- iv) The area of the square is,
 - a) 16sq.units
 - b) 36sq.units
 - c) 81sq.units
 - d) 18sq.units
- v) The length of the diagonal UW is,
 - a) 9 units
 - b) 10 units
 - c) $9\sqrt{2}$ units
 - d) 18 units

PART B

Question No 10 to 13 carries 2 marks each)

10. If $a + b + c = 29$ and $a^2 + b^2 + c^2 = 305$, then find the value of $ab + bc + ac$.
11. Expand $(2x - \frac{y}{3})^3$ using suitable identity.

OR

Find the value of the polynomial $P(x) = x^3 - 3x^2 - 2x + 6$ at $x = \sqrt{2}$

12. Express $0.3\bar{5}$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

13. In which quadrant or axis do the following points lie ?

a) (-1,7)

b) the abscissa is 0 and the ordinate is -5.

Question No 14 to 17 carries 3 marks each.

14. Find the value of a for which (x-a) is a factor of the polynomial

$$x^6 - ax^5 + x^4 - ax^3 + 3x - a + 2.$$

15. Represent $\sqrt{10.5}$ on number line.

16. If $x = 4 - \sqrt{15}$, then find the value of $\left(x + \frac{1}{x}\right)^2$.

OR

Simplify by rationalizing the denominator of $\frac{6-4\sqrt{3}}{6+4\sqrt{3}}$.

17. Factorise using suitable identity.

a) $64a^3 - 27b^3 - 144a^2b + 108ab^3$

b) $2x^2 - 5x - 3$

Question No 18 carries 5 mark

18. Prove that $\frac{1}{3+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{3}} + \frac{1}{\sqrt{3}+1} = 1$

OR

Simplify $2\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225} - \sqrt[4]{16}$