HALF YEARLY EXAM
2023-2024
Class- VIII

Time- 3hr **Subject- MATHS IInd** **M.M.-50**

Note:-Every questions is compulsory.

Ques1:- Tick(✓) the correct option:[1 ×5]

1. Which is the complete factorisation of $30x^3 - 15x^2$?
(a) $5(6x^3 - 3x^2)$ (b) $15(x^3 - 15x^2)$ (c) $15x(2x^2 - x)$ (d) $15x^2(2x - 1)$

2. Which of the following is a factor of $x^2 + x - 30$?
(a) $x + 5$ (b) $x + 6$ (c) $x - 6$ (d) $x + 2$

3.Which of the following cannot be the base of a pyramid?
(a)parallelogram(b) triangle(c)pentagon(d)circle

4.Which of the following solids has only one vertex?
(a)Tetrahedron (b) Cone (c) Cylinder (d)Square pyramid

5.In a square pyramid, F= V= 5, the number of edges in this 3D shape is
(a) 8 (b) 2 (c) 4 (d) 6

Ques2:- Fill in the blanks:[1 ×7]

1:- A triangular prism has.....edges.

2:- A polyhedron has 20 faces and 12 vertices. The number of edges in this polyhedron is.....

3:- △ is the view of the rectangular pyramid from the.....

4:-If the sum of number of vertices and faces in a polyhedron is 14,then the number of edges in that shape is.....

5:- One factor of x^2+6x+5 is x+1.The other factor is ..... .

6:- $9x^2 - 16y^2 = (3x - 4y)(.....)$

7 (a - b)(a+b)= ..... .

Ques3:- Write True and False for each of the following:[1 ×8]

1:- All trinomials of the form $x^2 + bx + c$ can be factorised. ( )

2:- The correct factorisation of $x^2 - 5x - 6$ is $(x+6)(x-1)$. ( )

3: The value of 104×96 ca be found by using the identity $a^2-b^2=(a+b)(a-b)$ ( )

4:- The expression $81x^2 - 36xy + 16y^2$ is a perfect square trinomial. ( )

5:- A cone is a polyhedron having one vertex. ( )

6:- The side view of a cylinder is a rectangle. ( )

7:- The net of a 3D shape consists of all plane figures. ( )

8:- A pentagonal prism is made up of 5 pentagons. ( )

Ques4:- Short answer type questions:[1×10]

1:- Factorise the following.

(a) $ax^2 + ay$ (b) $20x^2 - 15xy$

(c) $-8a^2 + 16ab$ (d) $5x - 10x^3 + 15x^2$

(e) $7x + 14y + (x + 2y)^2$ (f) $2pq - 6p + q - 3$

(g) $5p^2 - 5$ (h) $m^3 - mn^2 - m^2 + n^2$

(i) $56x^3 + 15x^2 - 56x$ (j) $3x^2 - x - 4$

2:- Define the following terms: **[2 × 4]**

(i) Prism (ii) Pyramid (iii) Polyhedron (iv) Regular Octahedron

Ques5:- Long answer type questions:(Attempt any four) [3 ×4]

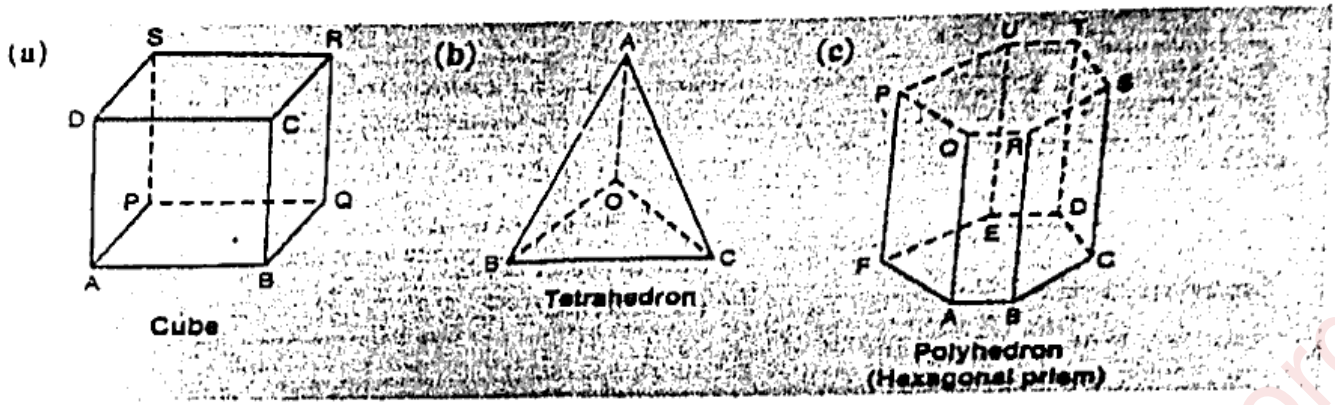
1:- The area of a rectangle is $(12x^4 - 8x^3 - 4x^2)cm^2$. Its width is $(3x + 1)cm$. What is the length of the rectangle?

2:- The area of a square is $(100x^2+100x +25)cm^2$. Find its perimeter.Find the peremeter when x= 5cm.

3:- 1:- Factorise the following polynomials.

(a) $x^2 - c^2 - 4 + 4c$ (b) $144x^4y^2 - z^2$ (c) $\frac{25}{36}x^8 - y$

4:- Verify Euler's formula for the following solids.



5:- Using the triangular prism, answer the following questions.

(a) Name three edges that interest at the vertex (i) C (ii) E.

(b) Name four vertices that lie on the plane BCFE.

(c) Name two edges parallel to the edge AD.