SETH ANANDRAM JAIPURIA SCHOOL

EMPOWER • ENTHUSE • EXCEL

TARNA, VARANASI

PERIODIC TEST – I (2023-24)

CLASS - IX

SUBJECT – MATHEMATICS (041)

TIME: 1 HOUR **M.M. – 20**

Name Shourya Rai Class/Sec 9-C Roll No. 28 Invigilator's sign.

General Instructions:

- This paper consists of four Section A,B,C and Section D. All sections are compulsory.
- Read the questions carefully before attempting.

SECTION A

I. Multiple Choice Questions **(1x5 = 5)**

1. **The velocity of a body as a function of time is $v(t) = 2+t+2t^2-t^3$ Find the velocity at t=1 sec is:**
   (a) 3 (b) 4 (c) -3 (d) -4

2. **The value of $\sqrt{10}$ times $\sqrt{15}$ is equal to:**
   (a) $5\sqrt{6}$ (b) $\sqrt{25}$ (c) $10\sqrt{5}$ (d) $\sqrt{5}$

3. **If $x^2+kx+6 = (x+2)(x+3)$ for all k, find the value of k.**
   (a) -1 (b) 1 (c) 3 (d) 5

4. **If the coordinates of a point are (0, -4), then it lies in:**
   (a) X-axis (b) Y-axis (c) At origin (d) Between x-axis and y-axis

5. **Assertion: every rational number is written in the form if p/q where p and q are integers, q=0**
   Reason: $7\sqrt{3}$ is a rational number.
   a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion
   b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
   c.) assertion is true but the reason is false.
   d.) both assertion and reason are false.

SECTION B

II. Very Short Answer Type Question **(1x3 = 3)**

1. Express 0.9999…….. as a fraction in simplest form.
2. Simplify $(3a - 2b)^3$
3. Rationalize the denominator and simplify $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$

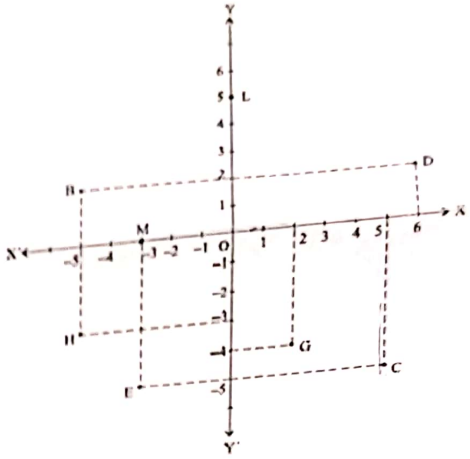
SECTION C

(2x3 = 6)

III. Short Answer Type Question-

1. If $a + b + c = 9$ and $ab + bc + ca = 26$, find the value of $a^3 + b^3 + c^3 - 3abc$.

2. See the figure and write the following:



(i) The Coordinates of B.

(ii) The coordinates of C.

(iii) The point identified by the coordinates (−3,−5)

(iv) The point identified by the coordinates (2,−4).

3. Simplify the following

(i) $3(a^4 b^3)^{10} \times 5 (a^2 b^2)^3$

(ii) $(2x^{-2} y^3)^3$

SECTION D

(1x3 = 3)

IV. Long Answer Type Question -

Case Study

1. On one day, principal of a particular school visited the classroom. Class teacher was teaching the concept of polynomial to students. He was very much impressed by her way of teaching. To check, whether the students also understand the concept taught by her or not, he asked various questions to students. Some of them are given below. Answer them

(i) Which one of the following is not a polynomial?

(a) $4x^2 + 2x - 1$

(b) $y + (3/y)$

(c) $x^3 - 1$

(d) $y^2 + 5y + 1$

(ii) The polynomial of the type $ax^2 + bx + c$, $a = 0$ is called

(a) Linear polynomial

(b) Quadratic polynomial

(c) Cubic polynomial

(d) Biquadratic polynomial

(iii) The value of k, if $(x - 1)$ is a factor of $4x^3 + 3x^2 - 4x + k$, is-

(a) 1

(b) −2

(c) −3

(d) 3

2. (i) Simplify $\sqrt{3 - 2\sqrt{2}}$ **(1.5)**

(ii) If $x = 2 + \sqrt{3}$, find the value of $x + 1/x$. **(1.5)**