



P.V.G.'s
Muktangan English School & Jr. College,
44, Vidyanagari, Parvati, Pune - 411009.
Terminal Examination (2025-26)
Standard - IX

Subject : Mathematics - I

Marks - 40

Date : 06.10.2025

Time : 8.00 am to 10.00 am

Q1. A) For each question, four alternatives are given. Choose the correct alternative and write the correct alphabet to indicate the answer. (4)

i) If $A \subseteq B$, then $A \cap B =$ _____.

- a) A b) B c) $A \cup B$ d) ϕ

ii) Order of the surd $5\sqrt{13}$ is _____.

- a) 1 b) 2 c) 5 d) 13

iii) The tens and units place of a two digit number is m and n respectively. Therefore, the two digit number is _____.

- a) m^2n b) $\frac{m}{n}$ c) $10n + m$ d) $10m + n$

iv) Which of the following is a linear polynomial?

- a) $x + 5$ b) $x^2 + 5$ c) $x^3 + 5$ d) $x^4 + 5$

B) Attempt the following subquestions. (4)

i) Write the polynomial $x^4 - 15$ in coefficient form.

ii) Simplify the surd $\sqrt{27}$

iii) Write set P in listing form.

$$P = \{x \mid x \text{ is a letter of the word 'INDIAN'}\}$$

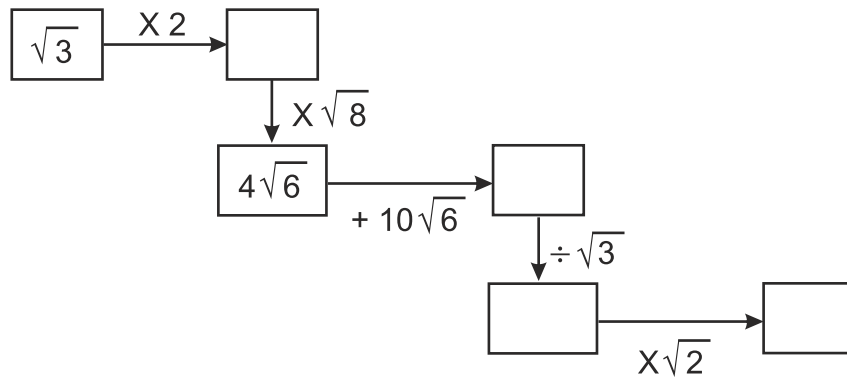
iv) Divide and write the answer in simplest form.

$$\sqrt{125} \div \sqrt{5}$$

Q2. A) Complete any two of the given activities and rewrite it.

(4)

i) Complete the following activity.



ii) Write the appropriate polynomial in the given boxes from the following :

x^5 , $x^2 + 7x + 1$, $-5x + 3$, $x^3 + 2x - 7$

Monomial $\longrightarrow$

Binomial $\longrightarrow$

Quadratic Polynomial $\longrightarrow$

Cubic Polynomial $\longrightarrow$

iii) Complete the following activity if A is any set

$A \cap A'$ =

$(A')'$ =

$A \cup A'$ =

$A \cap A$ =

B) Attempt any four of the following subquestions.

(8)

i) Rationalize the denominator $\frac{6}{9\sqrt{3}}$

ii) Find the value of $p(y) = 3y^3 - 2y + \sqrt{5}$ for $y = -3$

iii) $U = \{1, 2, 3, 4, 5, 7, 9\}$

$P = \{2, 4, 7\}$

Represent the set U, P and P' by Venn diagram.

iv) Solve : $|(3x + 5) - [(7 + x) \times 3]|$

v) Find the factors of the polynomial : $3y^2 - 2y - 1$

Q3. A) Complete any one activity and rewrite it.

(3)

- i) Divide $(y^3 + 343)$ by $(y + 7)$ using synthetic division method and hence write the quotient and remainder by completing the activity given below.

→ Solution :

Dividend is

Coefficient form of dividend is (1, 0, 0, 343)

Opposite of 7 is -7

	1	0	0	
		-7		-343
	1	-7	49	0

∴ Quotient = (in standard form)

Remainder =

- ii) Compare $5\sqrt{5}$; $7\sqrt{2}$ by completing the activity given below.

→ Solution :

Given : $5\sqrt{5}$, & $7\sqrt{2}$

∴ Squaring the above surds,

$$(5\sqrt{5})^2 = 25 \times \boxed{} = 125 \quad \text{-----} \textcircled{1}$$

$$\& (7\sqrt{2})^{\boxed{}} = 49 \times \boxed{} = \boxed{} \quad \text{-----} \textcircled{2}$$

∴ from $\textcircled{1}$ & $\textcircled{2}$

$$125 \boxed{} 98$$

$$\text{Hence, } 5\sqrt{5} \boxed{} 7\sqrt{2}$$

B) Attempt any two of the following subquestions. (6)

- i) Which polynomial is to be added to $4m^2 + 2m + 3$ to get the polynomial $6m^2 + 5m + 12$?
- ii) Show that $5 + \sqrt{7}$ is an irrational number.
- iii) If $n(A) = 20$, $n(B) = 28$, $n(A \cup B) = 36$, then $n(A \cap B) = ?$
- iv) If the value of the polynomial $m^3 + 2m + a$ is 12 for $m=2$, then find the value of 'a'.

Q4. Attempt any two of the following subquestions. (8)

- i) Factorise the following polynomial :
 $(x - 5)^2 - (5x - 25) - 24$
- ii) Rationalize the denominator of the following surd
$$\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$$
- iii) 80 trees were planted by Arya and 90 trees were planted by Reva on the occasion of Tree Plantation Week. Out of these 25 trees were planted by both Arya and Reva. How many trees were planted by either Arya or Reva?

Q5. Attempt any one of the following subquestions. (3)

- i) Solve : $\left| \frac{8 - x}{2} \right| = 5$
- ii) By using factor theorem, determine whether $q(x)$ is a factor of $p(x)$ or not.
 $p(x) = x^3 - x^2 - x - 1$, $q(x) = x - 3$

