

► Choose the right answer from the given options. [1 Marks Each]

[10]

1. The value of $\frac{(0.013)^3 + (0.007)^3}{(0.013)^2 - 0.013 \times 0.007 + (0.007)^2}$, is:
 (A) 0.0091 (B) 0.006 (C) 0.00185 (D) 0.02
2. If $p(x) = x + 4$ then $p(x) + p(-x) = ?$
 (A) 4 (B) $2x$ (C) 0 (D) 8
3. If $x + \frac{1}{x} = 3$, then $x^6 + \frac{1}{x^6} =$
 (A) 927 (B) 322 (C) 414 (D) 364
4. The value of K for which $x - 1$ is a factor of the polynomial $4x^3 + 3x^2 - 4x + k$.
 (A) 3 (B) 0 (C) 1 (D) -3
5. If $x + y + z = 9$ and $xy + yz + zx = 23$, the value of $(x^3 + y^3 + z^3 - 3xyz) = ?$
 (A) 108 (B) 207 (C) 669 (D) 729
6. If $x^3 - \frac{1}{x^3} = 14$ then $x - \frac{1}{x} =$
 (A) 4 (B) 2 (C) 3 (D) 5
7. If $\frac{a}{b} + \frac{b}{a} = -1$ then $(a^3 - b^3) = ?$
 (A) -3 (B) -2 (C) -1 (D) 0
8. Write the correct answer in the following:
 The value of $249^2 - 248^2$ is.
 (A) 1^2 (B) 477 (C) 487 (D) 497
9. If $x^3 + 6x^2 + 4x + k$ is exactly divisible by $x + 2$ then $k =$
 (A) -8 (B) -7 (C) -6 (D) -10
10. When $p(x) = x^3 - ax^2 + x$ is divided by $(x - a)$, the remainder is:
 (A) a (B) 0 (C) $3a$ (D) $2a$

► Answer the following short questions. [2 Marks Each]

[8]

11. Factorize:
 $x^2 + 5\sqrt{5}x + 30$
12. Give the possible expression for the length & breadth of the rectangle having $35y^2 - 13y - 12$ as its area.
13. In the following, use factor theorem to find whether polynomial $g(x)$ is a factor of polynomial $f(x)$ or, not:
 $f(x) = x^3 - 6x^2 - 19x + 84$, $g(x) = x - 7$
14. If $x = \frac{1}{2}$ is a zero of the polynomial $f(x) = 8x^3 + ax^2 - 4x + 2$, find the value of a.

► Answer the following questions. [3 Marks Each]

[12]

15. Multiply:
 $(9x^2 + 25y^2 + 15xy + 12x - 20y + 16)$ by $(3x - 5y + 4)$
16. Simplify:
 $\frac{173 \times 173 \times 173 + 127 \times 127 \times 127}{173 \times 173 - 173 \times 127 + 127 \times 127}$
17. Factorize:
 $5\sqrt{5}x^2 + 20x + 3\sqrt{5}$
18. Find the value of $x^3 + y^3 - 12xy + 64$, when $x + y = -4$
