

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

[10]

1. The zeros of the polynomial  $p(x) = 2x^2 + 5x - 3$  are.  
 (A)  $1, \frac{-1}{2}$  (B)  $\frac{-1}{2}, 3$  (C)  $\frac{1}{2}, -3$  (D)  $\frac{1}{2}, 3$
2. The value of  $\frac{(0.87)^3 + (0.13)^3}{(0.87)^2 - (0.87 \times 0.13) + (0.13)^2}$  is:  
 (A) 0 (B) 0.13 (C) 0.87 (D) 1
3. The value of  $(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y})(x + y)(x^2 + y^2)$  is:  
 (A)  $(x^4 + y^4)$  (B)  $(x^4 - y^4)$  (C)  $(x + y)^4$  (D)  $(x - y)^4$
4. If  $p(x) = 5x - 4x^2 + 3$  then  $p(-1) = ?$   
 (A) 6 (B) -2 (C) 2 (D) -6
5. If  $x - 2$  is a factor of  $x^2 + 3ax - 2a$ , then  $a =$   
 (A) 1 (B) -2 (C) 2 (D) -1
6. If  $49a^2 - b = \left(7a + \frac{1}{2}\right)\left(7a - \frac{1}{2}\right)$ , then the value of  $b$  is:  
 (A) 0 (B)  $\frac{1}{4}$  (C)  $\frac{1}{\sqrt{2}}$  (D)  $\frac{1}{2}$
7. If both  $x - a$  and  $x - \frac{1}{2}$  are the factors of  $px^2 + 5x + r$ , then:  
 (A)  $p = r$  (B)  $2p = r$  (C)  $p = 2r$  (D) None of these.
8. The expression  $(a - b)^3 + (b - c)^3 + (c - a)^3$  can be factorized as:  
 (A)  $(a - b)(b - c)(c - a)$  (B)  $3(a - b)(b - c)(c - a)$  (C)  $-3(a - b)(b - c)(c - a)$  (D)  $(a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
9. The factors of  $a^2 - 1 - 2x - x^2$ , are.  
 (A)  $(a + x + 1)(a - x - 1)$  (B)  $(a - x + 1)(a - x - 1)$  (C)  $(a + x - 1)(a - x + 1)$  (D) None of these.
10. The zeroes of the polynomial  $p(x) = x(x - 2)(x + 3)$  are:  
 (A) 0, 2, -4 (B) 0, 2, 4 (C) 0, 2, -3 (D) 0

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

[8]

11. If  $a^2 + b^2 + c^2 = 250$  and  $ab + bc + ca = 3$ , find  $a + b + c$ .
12. Factorize:  
 $x^2 - 2\sqrt{2}x - 30$
13. Verify that:  
 2 and -3 are the zeros of the polynomial  $q(x) = x^2 + x - 6$ .
14. Find the value of  $a$  for which  $(x - 4)$  is a factor of  $(2x^3 - 3x^2 - 18x + a)$ .

► Answer the following questions. [3 Marks Each]

[12]

15. Using factor theorem, show that  $g(x)$  is a factor of  $p(x)$ , when  
 $p(x) = 2x^4 + x^3 - 8x^2 - x + 6$ ,  $g(x) = 2x - 3$
16. Using the remainder theorem, find the remainder, when  $p(x)$  is divided by  $g(x)$ , where,  
 $p(x) = x^3 - 6x^2 + 2x - 4$ ,  $g(x) = 1 - \frac{3}{2}x$ .
17. The polynomials  $(2x^3 + x^2 - ax + 2)$  and  $(2x^3 - 3x^2 - 3x + a)$  when divided by  $(x - 2)$  leave the same remainder.  
 Find the value of  $a$ .
18. Using the remainder theorem, find the remainder, when  $p(x)$  is divided by  $g(x)$ , where,  
 $p(x) = 2x^3 + x^2 - 15x - 12$ ,  $g(x) = x + 2$ .

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