

Choose the correct answer.

- Roots of the equation  $x^2 + 7x + 12 = 0$  are  
(a) {3,-4} (b) {-3,4} (c) {3,4} (d) {-3,-4}
- $4^{1+x} + 4^{1-x} = 10$  is called  
(a) reciprocal eq (b) exponential eq (c) radical eq (d) none of these
- $\sqrt{x+8} + \sqrt{x+3} = \sqrt{12x+13}$  is called  
(a) reciprocal eq (b) exponential eq (c) radical eq (d) none of these
- $x^4 - 3x^3 + 4x^2 - 3x + 1 = 0$  is called  
(a) reciprocal eq (b) exponential eq (c) radical eq (d) none of these
- $w^4 =$   
(a) 0 (b) 1 (c)  $w$  (d)  $w^2$
- An expression of the type  $a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0 = 0$  is called  
(a) polynomial of degree 0 (b) polynomial of degree 1 (c) polynomial of degree 2 (d) polynomial of degree  $n$
- $5x^3 + 3x - 1$  is called  
(a) polynomial of degree 3 (b) polynomial of degree 2 (c) polynomial of degree 1 (d) polynomial of degree 0
- If  $x^3 + ax^2 - a^2x - a^3$  is divided by  $x + a$ , then the remainder is  
(a) 0 (b)  $a^3$  (c)  $2a^3$  (d)  $-2a^3$
- The sum of the roots of the equation  $ax^2 + bx + c = 0, a \neq 0$  is  
(a)  $\frac{b}{a}$  (b)  $-\frac{b}{a}$  (c)  $\frac{c}{a}$  (d)  $\frac{a}{b}$
- If S and P are the sum and the product of the roots of a quadratic equation, then quadratic equation is  
(a)  $x^2 + Sx - P = 0$  (b)  $x^2 - Sx + P = 0$  (c)  $x^2 - Sx - P = 0$  (d)  $x^2 + Sx + P = 0$
- The roots of the equation  $ax^2 + bx + c = 0$  are real and equal if  
(a)  $b^2 - 4ac < 0$  (b)  $b^2 - 4ac = 0$  (c)  $b^2 - 4ac > 0$  (d) none of these
- Roots of the equation  $x^2 + 5x - 1 = 0$  are  
(a) rational (b) irrational (c) complex (d) none of these
- If  $w$  is a cube root of unity then  $1 + w + w^2 =$   
(a) 1 (b) 2 (c) 0 (d) -1
- The product of the cube roots of unity is  
(a) zero (b) 1 (c) -1 (d) none of these
- $w^{28} + w^{38} =$   
(a) 0 (b) 1 (c)  $w$  (d) -1
- The sum of the fourth roots of unity is  
(a) 4 (b) 3 (c) 1 (d) 0
- The product of the four fourth roots of unity is  
(a) 0 (b) 1 (c) -1 (d)  $i$
- If  $x - 2$  is a factor of  $ax^2 - 12x + 4$ , then  $a =$   
(a) -5 (b) 5 (c) 0 (d) 1
- Which of the following is a factor of  $x^3 - 3x^2 + 2x - 6$   
(a)  $x + 2$  (b)  $x + 3$  (c)  $x - 3$  (d)  $x - 4$
- If  $w$  is complex cube root of unit then  $w =$   
(a) 0 (b) 1 (c)  $w^2$  (d)  $w^{-2}$

21. If  $\alpha, \beta$  are roots of  $2x^2 - 4x + 5 = 0$  then  $\frac{1}{\alpha} + \frac{1}{\beta} =$   
 (a)  $\frac{5}{4}$  (b)  $-\frac{5}{4}$  (c)  $\frac{4}{5}$  (d)  $-\frac{4}{5}$
22. If  $\alpha, \beta$  are roots of  $2x^2 - 4x + 5 = 0$  then  $(\alpha + 1)(\beta + 1) =$   
 (a)  $\frac{11}{2}$  (b)  $-\frac{11}{2}$  (c)  $\frac{2}{11}$  (d)  $-\frac{2}{11}$
23. If  $\alpha, \beta$  are the roots of  $2x^2 - 4x + 5 = 0$  then  $\alpha^2 + \beta^2 =$   
 (a) -1 (b) 0 (c) 2 (d) 1
24. The cube roots of 8 are  
 (a)  $1, w, w^2$  (b)  $2, 2w, 2w^2$  (c)  $-2, -2w, -2w^2$  (d)  $3, 3w, 3w^2$
25. The fourth roots of unity are  
 (a)  $0, 1, w, w^2$  (b)  $1, -1, i, -i$  (c)  $2, -2, 2i, -2i$  (d) none of these
26. If the polynomial  $x^3 + 4x^2 - 2x + 5$  is divided by  $x + 1$ , then the remainder is  
 (a) 4 (b) 6 (c) 8 (d) 10
27. The quadratic equation with roots  $2 - \sqrt{3}, 2 + \sqrt{3}$  is  
 (a)  $x^2 - 4x + 1 = 0$  (b)  $x^2 - 3x + 3 = 0$  (c)  $x^2 + 4x + 1 = 0$  (d)  $x^2 - 4x - 1 = 0$
28. If  $b^2 - 4ac$  is a positive perfect square then the roots of the equation are  
 (a) rational (b) irrational (c) complex (d) none of these
29. If  $b^2 - 4ac < 0$ , then the roots of the equation are  
 (a) rational (b) irrational (c) complex (d) none of these
30.  $(1 + w - w^2)^8 =$   
 (a) 256 (b)  $256w$  (c)  $-256$  (d)  $-256w$

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