

# SHIVALIK

Medical/IIT-JEE/Foundation  
NEET & AIIMS/ IIT JEE-2021-23  
Practice Sheet-4 (XI Appearing)

## TOPIC:- Quadratic Equation

- The roots of equation  $(x-b)(x-c) + (x+a)(x-c) + (x-a)(x-b) = 0$  are :-  
(1) Positive (2) Negative (3) Real (4) Imaginary
- Number of real solution of the equation  $e^{\sin x} - e^{-\sin x} - 4 = 0$  are :-  
(1) 2 (2) 1 (3) infinite (4) None of these
- If  $\alpha, \beta$  are roots of the equation  $(x-a)(x-b) = c$  and  $c \neq 0$ , then roots of equation  $(x-\alpha)(x-\beta) + c = 0$  will be :-  
(1)  $a, c$  (2)  $b, c$  (3)  $a, b$  (4)  $a + c, b + c$
- If  $x^2 - 3x + 2$  is a factor of polynomial  $x^4 - px^2 + q$ , then  $p$  &  $q$  are :-  
(1) 4, 5 (2) 5, 4 (3) -5, -4 (4) None of these
- If quadratic equation  $(a^2 - 5a + 3)x^2 + (3a - 1)x + 2 = 0$  one root is two times of other roots. Then value of  $a$  is :-  
(1)  $-\frac{1}{3}$  (2)  $\frac{2}{3}$  (3)  $-\frac{2}{3}$  (4)  $\frac{1}{3}$
- If  $(1 - p)$  is a root of equation  $x^2 + px + (1-p) = 0$  then roots are :-  
(1) 0, 1 (2) 0, -1 (3) -1, 1 (4) -1, 2
- If  $x$  is real and positive, then value of  $x + \frac{1}{x}$  is :-  
(1)  $< 2$  (2)  $< 1$  (3)  $\leq 2$  (4)  $\geq 2$
- If  $\alpha, \beta$  are roots of equation  $ax^2 - 2bx + c = 0$  and  $\alpha + \delta, \beta + \delta$  are roots of equation  $Ax^2 + 2Bx + C = 0$  then  $\frac{b^2 - ac}{B^2 - Ac}$  equals to :-  
(1)  $\frac{a}{A}$  (2)  $\frac{A}{a}$  (3)  $(\frac{ac}{A})^2$  (4)  $(\frac{A}{a})^2$
- If equation  $(b - c)x^2 + (c - a)x + (a - b) = 0$  has equal roots, then  $a, b, c$  is :-  
(1) in A.P. (2) in G.P. (3) In H.P. (4) None of these
- Number of solutions of equation  $3\sin^2 x - 7\sin x + 2 = 0$  in interval  $[0, 5\pi]$  is :-  
(1) 0 (2) 5 (3) 6 (4) 10
- If  $\alpha, \beta$  are roots of equation  $x^2 + 8x + 9 = 0$  then  $\alpha^3 - \beta^3$  equals to :-  
(1)  $55\sqrt{7}$  (2)  $110\sqrt{7}$  (3)  $110\sqrt{28}$  (4) None of these
- The real roots of equation  $7^{\log_7(x^2 - 4x + 5)} = x + 1$  is :-  
(1) 1, 2 (2) 1, 4 (3) 2, 3 (4) 4, 5
- If equation  $x^2 + x + 1 = 0$  roots are  $\alpha, \beta$  then equation of roots  $(\alpha^2 + \beta^2)$  &  $(\alpha^2 + \beta^2)$  will be :-  
(1)  $x^2 - x + 1 = 0$  (2)  $x^2 - x - 1 = 0$   
(3)  $x^2 - 2x + 1 = 0$  (4)  $(x + 1)^2 = 0$
- समी.  $(x-b)(x-c) + (x+a)(x-c) + (x-a)(x-b) = 0$  के दोनों मूल होंगे :-  
(1) धनात्मक (2) ऋणात्मक (3) वास्तविक (4) काल्पनिक
- समी.  $e^{\sin x} - e^{-\sin x} - 4 = 0$  के वास्तविक हलों की संख्या है :-  
(1) 2 (2) 1 (3) infinite (4) None of these
- यदि  $\alpha, \beta$  समी.  $(x-a)(x-b) = c$  के मूल हो तथा  $c \neq 0$ , तो समी.  $(x-\alpha)(x-\beta) + c = 0$  के मूल होंगे :-  
(1)  $a, c$  (2)  $b, c$  (3)  $a, b$  (4)  $a + c, b + c$
- यदि व्यंजक  $x^4 - px^2 + q$  का  $x^2 - 3x + 2$  एक गुणखण्ड है, तो  $p$  व  $q$  है :-  
(1) 4, 5 (2) 5, 4 (3) -5, -4 (4) None of these
- यदि द्विघात समी.  $(a^2 - 5a + 3)x^2 + (3a - 1)x + 2 = 0$  का एक मूल दूसरे का दुगुना हो तो  $a$  का मान होगा :-  
(1)  $-\frac{1}{3}$  (2)  $\frac{2}{3}$  (3)  $-\frac{2}{3}$  (4)  $\frac{1}{3}$
- यदि  $(1 - p)$  समी.  $x^2 + px + (1-p) = 0$  एक मूल है, तब इसके मूल हैं :-  
(1) 0, 1 (2) 0, -1 (3) -1, 1 (4) -1, 2
- यदि  $x$  वास्तविक व धनात्मक है, तब  $x + \frac{1}{x}$  का मान है :-  
(1)  $< 2$  (2)  $< 1$  (3)  $\leq 2$  (4)  $\geq 2$
- यदि समी.  $ax^2 - 2bx + c = 0$  के मूल  $\alpha, \beta$  तथा समी.  $Ax^2 + 2Bx + C = 0$  के मूल  $\alpha + \delta, \beta + \delta$  हो तो  $\frac{b^2 - ac}{B^2 - Ac}$  बराबर है :-  
(1)  $\frac{a}{A}$  (2)  $\frac{A}{a}$  (3)  $(\frac{ac}{A})^2$  (4)  $(\frac{A}{a})^2$
- यदि समी.  $(b - c)x^2 + (c - a)x + (a - b) = 0$  के मूल समान है, तब  $a, b, c$  है :-  
(1) in A.P. (2) in G.P. (3) in H.P. (4) None of these
- समी.  $3\sin^2 x - 7\sin x + 2 = 0$  के अन्तराल  $[0, 5\pi]$  में हलों की संख्या है :-  
(1) 0 (2) 5 (3) 6 (4) 10
- यदि  $\alpha, \beta$  समी.  $x^2 + 8x + 9 = 0$  के मूल हैं, तो  $\alpha^3 - \beta^3$  बराबर है :-  
(1)  $55\sqrt{7}$  (2)  $110\sqrt{7}$  (3)  $110\sqrt{28}$  (4) None of these
- समी.  $7^{\log_7(x^2 - 4x + 5)} = x + 1$  के वास्तविक मूल है :-  
(1) 1, 2 (2) 1, 4 (3) 2, 3 (4) 4, 5
- यदि समी.  $x^2 + x + 1 = 0$  के मूल  $\alpha, \beta$  है, तो वह समी. जिसके मूल्य  $(\alpha^2 + \beta^2)$  व  $(\alpha^2 + \beta^2)$  है, होगी :-  
(1)  $x^2 - x + 1 = 0$  (2)  $x^2 - x - 1 = 0$   
(3)  $x^2 - 2x + 1 = 0$  (4)  $(x + 1)^2 = 0$

14. If  $\alpha, \beta$  are roots of equation  $x^2 + 2x + 5 = 0$  then equation of roots  $\frac{1}{\alpha} + \frac{1}{\beta}$  and  $(\alpha + \beta)$  will be :-  
 (1)  $5x^2 + 12x - 4 = 0$  (2)  $5x^2 + 12x + 4 = 0$   
 (3)  $5x^2 - 12x + 4 = 0$  (4) None of these
15. In quadratic equation  $\frac{x-m}{mx+1} = \frac{x+n}{nx+1}$  roots are reciprocal of each other, then :-  
 (1)  $n = 0$  (2)  $m = n$  (3)  $m + n = 1$  (4)  $m^2 + n^2 = 1$
16. If  $\forall b \in \mathbb{R}$ , equation  $x^2 + (a - b)x + (1 - a - b) = 0$  have different and real roots, then :-  
 (1)  $a < 1$  (2)  $a > 1$  (3)  $a > 0$  (4)  $a < 0$
17. Number of real roots of equation  $|x|^2 - 3|x| + 2 = 0$  are :-  
 (1) 2 (2) 3 (3) 4 (4) 1
18. In equation  $x^2 + bx + c = 0$ , Sheela reads efficient of  $x$ , 19 place of 16 and equation roots are -15 and -4, then right root of equation are :-  
 (1) 8, 8 (2) 6, 10 (3) -6, -10 (4) 12, 5
19. If equation  $x^2 + px + q = 0$  and  $x^2 + p'x + q' = 0$  have a common root is :-  
 (1)  $\frac{pq' - p'q}{q - q'}$  (2)  $\frac{q - q'}{p' - p}$   
 (3)  $\frac{pq' - p'q}{q - q'}$  or  $\frac{q - q'}{p' - p}$  (4) None of these
20. If  $\alpha + \beta = 4$  and  $\alpha^3 + \beta^3 = 44$ , then equation roots  $\alpha, \beta$  are :-  
 (1)  $3x^2 + 9x + 11 = 0$  (2)  $3x^2 - 12x + 5 = 0$   
 (3)  $2x^2 - 8x + 5 = 0$  (4) None of these

14. यदि  $\alpha, \beta$  समी.  $x^2 + 2x + 5 = 0$  के मूल हैं, तब मूलों  $\frac{1}{\alpha} + \frac{1}{\beta}$  व  $(\alpha + \beta)$  वाली समीकरण होगी :-  
 (1)  $5x^2 + 12x - 4 = 0$  (2)  $5x^2 + 12x + 4 = 0$   
 (3)  $5x^2 - 12x + 4 = 0$  (4) None of these
15. यदि द्विघात समी.  $\frac{x-m}{mx+1} = \frac{x+n}{nx+1}$  के मूल एक दूसरे - व्युत्क्रम हो तो :-  
 (1)  $n = 0$  (2)  $m = n$  (3)  $m + n = 1$  (4)  $m^2 + n^2 = 1$
16. यदि  $\forall b \in \mathbb{R}$  के लिये समी.  $x^2 + (a - b)x + (1 - a - b) = 0$  के मूल वास्तविक एवं भिन्न हैं, तब :-  
 (1)  $a < 1$  (2)  $a > 1$  (3)  $a > 0$  (4)  $a < 0$
17. समी.  $|x|^2 - 3|x| + 2 = 0$  के वास्तविक मूलों की संख्या है :-  
 (1) 2 (2) 3 (3) 4 (4) 1
18.  $x^2 + bx + c = 0$ , रूप में समी. में, शीला  $x$  के गुणांक को जो 16 है, गलती से 19 पढ़ती है तथा समी. के मूल -15 और -4, प्राप्त करती है, तो समी. के सही मूल हैं :-  
 (1) 8, 8 (2) 6, 10 (3) -6, -10 (4) 12, 5
19. यदि समी.  $x^2 + px + q = 0$  तथा  $x^2 + p'x + q' = 0$  का एक मूल उभयनिष्ठ है, तब उसका मान है :-  
 (1)  $\frac{pq' - p'q}{q - q'}$  (2)  $\frac{q - q'}{p' - p}$   
 (3)  $\frac{pq' - p'q}{q - q'}$  or  $\frac{q - q'}{p' - p}$  (4) None of these
20. यदि  $\alpha + \beta = 4$  और  $\alpha^3 + \beta^3 = 44$ , तब मूल  $\alpha, \beta$  वाली समी. होगी :-  
 (1)  $3x^2 + 9x + 11 = 0$  (2)  $3x^2 - 12x + 5 = 0$   
 (3)  $2x^2 - 8x + 5 = 0$  (4) None of these

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### ANSWER SHEET

Question	1	2	3	4	5
Answer	3	4	3	2	2
Question	6	7	8	9	10
Answer	2	4	3	1	3
Question	11	12	13	14	15
Answer	2	2	4	2	1
Question	16	17	18	19	20
Answer	2	3	3	3	2