Quiz Date: 21st September 2020

Directions (1-5): In each question two equations numbered (I) and (II) are given. You should solve both the equations and mark appropriate answer.
(a) If x=y or no relation can be established
(b) If x>y
(c) If x<y
(d) If x≥y
(e) If x≤y

Q1.   I. $25x^2 - 90x + 72 = 0$
II. $5y^2 - 27y + 36 = 0$

Q2.   I. $12x^2 + 46x + 42 = 0$
II. $3y^2 - 16y + 21 = 0$

Q3.   I. $4x^2 + 10x = 14$
II. $15 = 16y - 4y^2$

Q4.   I. $6x^2 + 15x - 36 = 0$
II. $4y^2 - 2y - 10 = -8$

Q5.   I. $2x^2 - 19x + 44 = 0$
II. $3y^2 - 22y + 40 = 0$

Directions (6-10): Solve the given quadratic equations and mark the correct option based on your answer—

Q6. (i) $x^2 + 9x = 25x - 63$
(ii) $4y^2 - 34y + 72 = 0$
(a) x = y or no relation can be established between x and y.
(b) x ≤ y
(c) x < y
(d) x > y
(e) x ≥ y

Q7. (i) $\frac{20\% \text{ of } 225}{x} = -x + 14$
(ii) 30%of 70y = y^2 + 90
(a) x ≥ y
(b) x > y
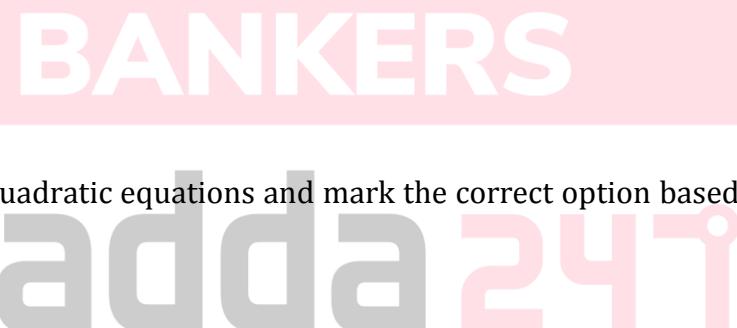(c) x = y or no relation can be established between x and y.
(d) x ≤ y
(e) x < y

Q8. (i) 6x + 7y = 15
(ii) 3x + 14y = 19.5

(a) x > y
(b) x = y or no relation can be established between x and y.
(c) x ≤ y
(d) x < y
(e) x ≥ y

Q9. (i) $7x^2 + 5x – 18 = 0$
(ii) $3y^2 + 4y – 20 = 0$
(a) x > y
(b) x ≤ y
(c) x = y or no relation can be established between x and y.
(d) x ≥ y
(e) x < y

Q10. (i) $x^2 + 5x = 5 (2x + 3x)$
(ii) $3y^2 + 2y = 2(y + 6)$
(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Directions (11-15): In each of the following questions two equations are given. Solve these equations and give answer:
(a) if $x \geq y$, i.e. x is greater than or equal to y
(b) if $x > y$, i.e. x is greater than y
(c) if $x \leq y$, i.e. x is less than or equal to y
(d) if $x < y$, i.e. x is less than y
(e) $x = y$ or no relation can be established between x and y

Q11.   I. $6x^2 + 17x + 5 = 0$
II. $2y^2 + 21y + 49 = 0$

Q12.   I. $x^2 - 8x + 15 = 0$
II. $2y^2 - 5y - 3 = 0$

Q13.   I. $5x^2 + 11x + 2 = 0$
II. $4y^2 + 13y + 3 = 0$

Q14.   I. $4x + 2y = 4$
II. $3x + 5y = 3$

Q15.   I. $6x^2 + x - 15 = 0$

II. $4y^2 - 24y + 35 = 0$

Solutions

S1. Ans.(e)
Sol.
I. $25x^2 - 90x + 72 = 0$
   $\Rightarrow 25x^2 - 30x - 60x + 72 = 0$
   $\Rightarrow 5x(5x - 6) - 12(5x - 6) = 0$
   $\Rightarrow x = \frac{6}{5}$ or $\frac{12}{5}$
II. $5y^2 - 27y + 36 = 0$
   $\Rightarrow 5y^2 - 15y - 12y + 36 = 0$
   $\Rightarrow 5y(y - 3) - 12(y - 3) = 0$
   $\Rightarrow y = 3$ or $\frac{12}{5}$
$y \geq x$

S2. Ans.(c)
Sol.
I. $12x^2 + 46x + 42 = 0$
   $\Rightarrow 12x^2 + 18x + 28x + 42 = 0$
   $\Rightarrow 6x(2x + 3) + 14(2x + 3) = 0$
   $\Rightarrow x = \frac{-3}{2}$ or $\frac{-14}{6}$
II. $3y^2 - 16y + 21 = 0$
   $\Rightarrow 3y^2 - 9y - 7y + 21 = 0$
   $\Rightarrow 3y(y - 3) - 7(y - 3) = 0$
   $\Rightarrow y = 3$ or $\frac{7}{3}$
$y > x$

S3. Ans.(c)
Sol.
I. $4x^2 + 10x - 14 = 0$
   $\Rightarrow 4x^2 + 14x - 4x - 14 = 0$
   $\Rightarrow 2x(2x + 7) - 2(2x + 7) = 0$
   $\Rightarrow x = 1$ or $\frac{-7}{2}$
II. $4y^2 - 16y + 15 = 0$
   $\Rightarrow 4y^2 - 6y - 10y + 15 = 0$
   $\Rightarrow 2y(2y - 3) - 5(2y - 3) = 0$
   $\Rightarrow y = \frac{3}{2}$ or $\frac{5}{2}$
$y > x$

S4. Ans.(a)

Sol.
I. $6x^2 + 15x - 36 = 0$
      $\Rightarrow 6x^2 + 24x - 9x - 36 = 0$
      $\Rightarrow 6x (x + 4) - 9 (x + 4) = 0$
      $\Rightarrow x = -4 \text{ or } \frac{9}{6}$
II. $4y^2 - 2y - 2 = 0$
      $\Rightarrow 4y^2 - 4y + 2y - 2 = 0$
      $\Rightarrow 4y (y - 1) + 2 (y - 1) = 0$
      $\Rightarrow y = 1 \text{ or } \frac{-1}{2}$
Relationship can't be established

S5. Ans.(d)
Sol.
I. $2x^2 - 19x + 44 = 0$
      $\Rightarrow 2x^2 - 8x - 11x + 44 = 0$
      $\Rightarrow 2x (x - 4) - 11 (x - 4) = 0$
      $\Rightarrow x = 4 \text{ or } \frac{11}{2}$
II. $3y^2 - 22y + 40 = 0$
      $\Rightarrow 3y^2 - 12y - 10y + 40 = 0$
      $\Rightarrow 3y (y - 4) - 10 (y - 4) = 0$
      $\Rightarrow y = 4 \text{ or } \frac{10}{3}$
$x \geq y$

S6. Ans.(d)
Sol.
(i) $x^2 + 9x = 25x - 63$
      $x^2 - 16x + 63 = 0$
      $x = 9, 7$
(ii) $4y^2 - 34y + 72 = 0$
      $4y^2 - 18y - 16y + 72 = 0$
      $y = \frac{9}{2}, 4$
      $\therefore x > y$

S7. Ans.(c)
Sol.
(i) $\frac{1}{5} \times \frac{225}{x} = -x + 14$
      $-45 = x^2 - 14x$
      $x^2 - 14x + 45 = 0$
      $x^2 - 9x - 5x + 45$
      $x = 9, 5$
(ii) $21y = y^2 + 90$
      $y^2 - 21y + 90 = 0$

$y^2 - 15y - 6y + 90 = 0$
$y = 15, 6$
∴ No relation

S8. Ans.(a)
Sol.
(i) $6x + 7y = 15$
(ii) $3x + 14y = 19.5$
Solving (i) and (ii)
$x = \frac{7}{6}, \quad y = \frac{8}{7}$
$x > y$

S9. Ans.(c)
Sol.
(i) $7x^2 + 5x - 18 = 0$
         $7x^2 - 9x + 14x - 18 = 0$
         $x(7x - 9) + 2(7x - 9) = 0$
         $x = \frac{9}{7}, -2$
(ii) $3y^2 + 4y - 20 = 0$
         $3y^2 + 10y - 6y - 20 = 0$
         $y(3y + 10) - 2(3y + 10) = 0$
$y = 2, -\frac{10}{3}$
∴ No relation

S10. Ans.(e)
Sol.
(i) $x^2 + 5x = 25x$
$x^2 - 20x = 0$
$x(x - 20) = 0$
$x = 0, 20$
(ii) $3y^2 + 2y = 2y + 12$
         $3y^2 = 12$
         $y^2 = 4$
         $y = \pm 2$
         ∴ No relation.

S11. Ans.(b)
Sol.
I. $6x^2 + 17x + 5 = 0$
$6x^2 + 2x + 15x + 5 = 0$
$2x(3x + 1) + 5(3x + 1) = 0$
$\therefore x = -\frac{5}{2} \ or \ -\frac{1}{3}$
II. $2y^2 + 21y + 49 = 0$

$2y^2 + 14y + 7y + 49 = 0$
$2y(y + 7) + 7(y + 7) = 0$
$y = -7, -\dfrac{7}{2}$
$\Rightarrow x > y$

S12. Ans.(a)
Sol.
I. $x^2 - 8x + 15 = 0$
$x^2 - 5x - 3x + 15 = 0$
$x(x - 5) - 3(x - 5) = 0$
$\therefore x = 3$ or 5
II. $2y^2 - 5y - 3 = 0$
$2y^2 - 6y + y - 3 = 0$
$2y(y - 3) + 1(y - 3) = 0$
$y = 3 \; or -\dfrac{1}{2}$
$\therefore x \geq y$

S13. Ans.(e)
Sol.
I. $5x^2 + 11x + 2 = 0$
$5x^2 + 10x + x + 2 = 0$
$5x(x + 2) + 1(x + 2) = 0$
$x = -2$ or $-\dfrac{1}{5}$
II. $4y^2 + 13y + 3 = 0$
$4y^2 + 12y + y + 3 = 0$
$4y(y + 3) + 1(y + 3) = 0$
$\therefore y = -3 \; or -\dfrac{1}{4}$
$\therefore$ no relation

S14. Ans.(b)
Sol.
I. $4x + 2y = 4$ ...(i)
II. $3x + 5y = 3$ ...(ii)
Multiplying (i) by 5 & (ii) by 2 and on solving
$x = 1, y = 0$
$\therefore x > y$

S15. Ans.(d)
Sol.
I. $6x^2 + x - 15 = 0$
$6x^2 - 9x + 10x - 15 = 0$
$3x(2x - 3) + 5(2x - 3) = 0$
$\therefore x = \dfrac{3}{2} \; or -\dfrac{5}{3}$

II. $4y^2 - 24y + 35 = 0$
$4y^2 - 14y - 10y + 35 = 0$
$2y(2y - 7) - 5 (2y - 7) = 0$
$\therefore y = \frac{7}{2} \ or \frac{5}{2}$
$\therefore y > x$

For any Banking/Insurance exam Assistance, Give a Missed call @ 01141183264