

Quiz Date: 8<sup>th</sup> March 2020

**Directions (1-5):** Solve the given quadratic equations and mark the correct option based on your answer—

- (a)  $x > y$   
 (b)  $x \geq y$   
 (c)  $x < y$   
 (d)  $x \leq y$   
 (e)  $x = y$  or no relation can be established between  $x$  and  $y$ .

Q1. I.  $3x^2 - 10x + 8 = 0$   
 II.  $5y^2 - 22y + 24 = 0$

Q2. I.  $4x^2 + 39x + 90 = 0$   
 II.  $2y^2 - 3\sqrt{3}y - 15 = 0$

Q3. I.  $5x^2 - 36 = 12^2$   
 II.  $y^2 + 17y + 72 = 0$

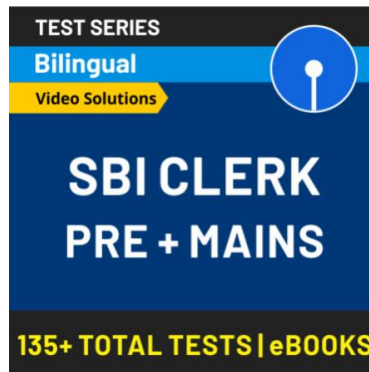
Q4. I.  $1.5x^2 - 10x + 16 = 0$   
 II.  $y^2 = 6y$

Q5. I.  $2x^2 - 21x + 55 = 0$   
 II.  $5y^2 - 46y + 105 = 0$

**Directions (6-10):** What value should come in place of (?) in the following questions?

Q6.  $481 \div 37 \times 16 + 211 = ? + (16)^2$

- (a) 203  
 (b) 163  
 (c) 193  
 (d) 675  
 (e) 395



Q7.  $\frac{100}{3}\%$  of 450 +  $\frac{4}{9} \times 2160 - 32\%$  of 550 = ?

- (a) 934

- (b) 634
- (c) 943
- (d) 346
- (e) 843

Q8.  $(35\% \text{ of } 4200) + ? = (125\% \text{ of } 32)^2$

- (a) 170
- (b) 90
- (c) 130
- (d) 210
- (e) 190

Q9.  $\sqrt{2809} + 18\% \text{ of } 250 - ? = 290\% \text{ of } 30$

- (a) 21
- (b) 11
- (c) 185
- (d) 95
- (e) 41

Q10.  $(\sqrt{2})^? \times 400 \sqrt{2} = 4^4 \times 5^2$

- (a) 4
- (b) 5
- (c) 6
- (d) 7
- (e) 8

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**Directions (11-15):** In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

- (a) if  $x > y$
- (b) if  $x \geq y$
- (c) if  $x < y$
- (d) if  $x \leq y$
- (e) if  $x = y$  or no relation can be established between  $x$  and  $y$ .

Q11. I.  $x^2 - 8\sqrt{3}x + 45 = 0$

II.  $y^2 - \sqrt{2}y - 24 = 0$

Q12. I.  $12x^2 - 17x + 6 = 0$

II.  $20y^2 - 31y + 12 = 0$

Q13. I.  $35x^2 - 53x + 20 = 0$

II.  $56y^2 - 97y + 42 = 0$

Q14. I.  $x^2 - 5x - 14 = 0$

II.  $y^2 + 7y + 10 = 0$

Q15. I.  $14x^2 + 11x - 15 = 0$

II.  $20y^2 - 31y + 12 = 0$

### Solutions

S1. Ans.(d)

Sol.

I.  $3x^2 - 10x + 8 = 0$

$3x^2 - 4x - 6x + 8 = 0$

$x(3x - 4) - 2(3x - 4) = 0$

$(x - 2)(3x - 4) = 0$

$x = 2, \frac{4}{3}$

II.  $5y^2 - 22y + 24 = 0$

$5y^2 - 10y - 12y + 24 = 0$

$5y(y - 2) - 12(y - 2) = 0$

$(5y - 12)(y - 2) = 0$

$y = \frac{12}{5}, 2$

$y \geq x$



S2. Ans.(c)

Sol.

I.  $4x^2 + 39x + 90 = 0$

$4x^2 + 24x + 15x + 90 = 0$

$4x(x + 6) + 15(x + 6) = 0$

$(4x + 15)(x + 6) = 0$

$x = -\frac{15}{4}, -6$

II.  $2y^2 - 3\sqrt{3}y - 15 = 0$

$2y^2 - 5\sqrt{3}y + 2\sqrt{3}y - 15 = 0$

$y(2y - 5\sqrt{3}) + \sqrt{3}(2y - 5\sqrt{3}) = 0$

$(y + \sqrt{3})(2y - 5\sqrt{3}) = 0$

$y = -\sqrt{3}, \frac{5\sqrt{3}}{2}$

$y > x$

S3. Ans.(a)

Sol.

I.  $5x^2 - 36 = 12^2$

$5x^2 = 144 + 36$

$5x^2 = 180$

$x^2 = 36$

$x = \pm 6$

II.  $y^2 + 17y + 72 = 0$

$y^2 + 9y + 8y + 72 = 0$

$y(y + 9) + 8(y + 9) = 0$

$(y + 8)(y + 9) = 0$

$y = -8, -9$

$x > y$

S4. Ans.(e)

Sol.

I.  $1.5x^2 - 10x + 16 = 0$

$1.5x^2 - 4x - 6x + 16 = 0$

$x(1.5x - 4) - 4(1.5x - 4) = 0$

$(x - 4)(1.5x - 4) = 0$

$x = 4, \frac{4}{1.5}$

II.  $y^2 = 6y$

$y^2 - 6y = 0$

$y(y - 6) = 0$

$y = 0, 6$

No relation can be established between x &amp; y

S5. Ans.(b)

Sol.

I.  $2x^2 - 21x + 55 = 0$

$2x^2 - 10x - 11x + 55 = 0$

$2x(x - 5) - 11(x - 5) = 0$

$(2x - 11)(x - 5) = 0$

$x = \frac{11}{2}, 5$

II.  $5y^2 - 46y + 105 = 0$

$5y^2 - 25y - 21y + 105 = 0$

$5y(y - 5) - 21(y - 5) = 0$

$(5y - 21)(y - 5) = 0$

$y = \frac{21}{5}, 5$

$y \leq x$

S6. Ans.(b)

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Sol.  $\frac{481}{37} \times 16 + 211 = ? + 256$   
 $? = 208 + 211 - 256$   
 $? = 163$

S7. Ans.(a)

Sol.  $\frac{450}{3} + 960 - 176 = ?$   
 $? = 934$

S8. Ans.(c)

Sol.  $35 \times 42 + ? = \left(\frac{5}{4} \times 32\right)^2$   
 $? = 1600 - 1470 = 130$

S9. Ans.(b)

Sol.  $53 + 45 - ? = 87$   
 $? = 11$

S10. Ans.(d)

Sol.  $(\sqrt{2})^? \times 400\sqrt{2} = 256 \times 25$   
 $(\sqrt{2})^? = \frac{16}{\sqrt{2}}$   
 $(\sqrt{2})^? = 8\sqrt{2}$   
 $(\sqrt{2})^? = (\sqrt{2})^7$   
 $? = 7$

S11. Ans.(e)

Sol.  
 $x^2 - 5\sqrt{3}x - 3\sqrt{3}x + 45 = 0$   
 $x(x - 5\sqrt{3}) - 3\sqrt{3}(x - 5\sqrt{3}) = 0$   
 $x = 3\sqrt{3}, 5\sqrt{3}$   
 $y^2 - 4\sqrt{2}y + 3\sqrt{2}y - 24 = 0$   
 $y(y - 4\sqrt{2}) + 3\sqrt{2}(y - 4\sqrt{2}) = 0, y = 4\sqrt{2}, -3\sqrt{2}$   
 No relation can be established.

S12. Ans.(d)

Sol.  
 $12x^2 - 8x - 9x + 6 = 0$   
 $4x(3x - 2) - 3(3x - 2) = 0$   
 $x = \frac{2}{3}, \frac{3}{4}$   
 $20y^2 - 15y - 16y + 12 = 0$   
 $5y(4y - 3) - 4(4y - 3) = 0$   
 $y = \frac{4}{5}, \frac{3}{4}$

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$$x \leq y$$

S13. Ans. (c)

$$\text{Sol. } 35x^2 - 25x - 28x + 20 = 0$$

$$5x(7x - 5) - 4(7x - 5) = 0$$

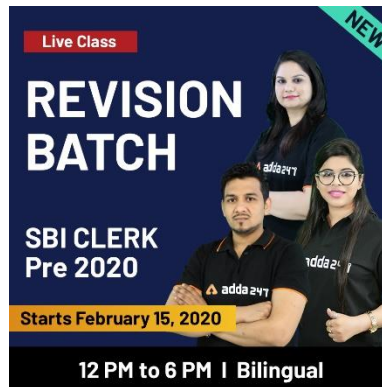
$$x = \frac{4}{5}, \frac{5}{7}$$

$$56y^2 - 49y - 48y + 42 = 0$$

$$7y(8y - 7) - 6(8y - 7) = 0$$

$$y = \frac{6}{7}, \frac{7}{8}$$

$$x < y$$



S14. Ans. (b)

$$\text{Sol. } x^2 - 7x + 2x - 14 = 0$$

$$x(x - 7) + 2(x - 7) = 0$$

$$x = 7, -2$$

$$y^2 + 5y + 2y + 10 = 0$$

$$y = -2, -5$$

$$x \geq y$$

S15. Ans.(c)

Sol.

$$\text{I. } 14x^2 + 11x - 15 = 0$$

$$14x^2 + 21x - 10x - 15 = 0$$

$$7x(2x + 3) - 5(2x + 3) = 0$$

$$(7x - 5)(2x + 3)$$

$$x = \frac{-3}{2}, \frac{5}{7}$$

$$y > x$$

$$\text{II. } 20y^2 - 31y + 12 = 0$$

$$20y^2 - 15y - 16y + 12 = 0$$

$$5y(4y - 3) - 4(4y - 3) = 0$$

$$(5y - 4)(4y - 3)$$

$$y = \frac{4}{5}, \frac{3}{4}$$

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