Quiz Date: 10th April 2020

Directions (1-5): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer
(a) if $p > q$
(b) if $p \geq q$
(c) if $p < q$
(d) if $p \leq q$
(e) if p = q or there is no relation between 'p' and 'q'.

Q1. I. $(p + q)^2=3136$
II. $q+2513=2569$

Q2. I. $4p^2-16p+15=0$
II. $2q^2+5q-7=0$

Q3. I. $p^2=49$
II. $q^2+15q+56=0$

Q4. I. $2p^2+5p-12 = 0$
II. $2q^2-q-1=0$

Q5. I. $p^2-12p+35=0$
II. $q^2-25=0$

Directions (6-15): In each of these questions, two equation (I) and (II) are given. You have to solve both the equations and give answer
(a) if x < y
(b) if x > y
(c) if $x \geq y$
(d) if $x \leq y$
(e) if x = y or no relationship can be established between x and y

Q6. I. $6x^2 + 77x + 121 = 0$
II. $y^2 + 9y - 22 = 0$

Q7. I. $x = \sqrt{625}$
II. $y = \sqrt{676}$

Q8. I. $x^2 + 4x + 4 = 0$
II. $y^2 - 8y + 16 = 0$

Q9. I. $x^2 - (16)^2 = (23)^2 - 56$
II. $y^{1/3} - 55 + 376 = (18)^2$

Q10. I. $x^2 - 19x + 84 = 0$
II. $y^2 - 25y + 156 = 0$

Q11. I. 3x + 5y = 28
II. 8x – 3y = 42

Q12. I. $6x^2 + 23x + 20 = 0$
II. $6y^2 + 31y + 35 = 0$

Q13. I. $4x^2 - 25x + 39 = 0$
II. $18y^2 - 15y + 3 = 0$

Q14. I. $x^2 - 72 = x$
II. $y^2 = 64$

Q15. I. $30x^2 + 11x + 1 = 0$
II. $42y^2 + 13y + 1 = 0$

Solutions

S1. Ans.(c)
Sol.
From I
$q = 56$
From II
$p + q = \pm 56$
If p + q=-56 then p= -112
p + q=56 then p=0
so, $q > p$

S2. Ans.(a)
Sol.
From I
$4p^2 - 10p - 6p + 15 = 0$
$2p(2p - 5) - 3(2p - 5) = 0$

$p = \frac{3}{2}, \frac{5}{2}$
From II
$2q^2 - 2q + 7q - 7 = 0$
$2q(q-1) + 7(q-1) = 0$
$q = \frac{-7}{2}, 1$
$p > q$

S3. Ans.(b)
Sol.
From I
$p = 7, -7$
From II
$q^2 + 7q + 8q + 56 = 0$
$q(q+7) + 8(q+7) = 0$
$q = -7, -8$
$p \geq q$

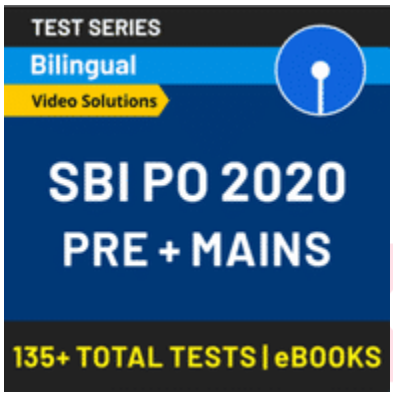
S4. Ans.(e)
Sol.
From I
$2p^2 + 8p - 3p - 12 = 0$
$2p(p+4) - 3(p+4) = 0$
$p = \frac{3}{2}, -4$
From II
$2q^2 - 2q + q - 1 = 0$
$2q(q-1) + 1(q-1) = 0$
$q = \frac{-1}{2}, 1$
No relation can be established.

S5. Ans.(b)
Sol.
From I
$p^2 - 7p - 5p + 35 = 0$
$p(p-7) - 5(p-7) = 0$
$p = 5, 7$
From II
$q = 5, -5$
$p \geq q$

S6. Ans.(e)
Sol. I. $6x^2 + 77x + 121 = 0$
$or, 6x^2 + 66x + 11x + 121 = 0$
$or, 6x(x+11) + 11(x+11) = 0$
$or, (6x+11)(x+11) = 0$

$or, x = -\frac{11}{6}, -11$
II. $y^2 + 9y - 22 = 0$
$or, y^2 + 11y - 2y - 22 = 0$
$or, y(y + 11) - 2(y + 11) = 0$
$or, (y - 2)(y + 11) = 0$
$or, y = 2, -11$
Hence, no relationship can be established between x and y.

S7. Ans.(a)
Sol. I. $x = \sqrt{625} = +25$
II. $y = \sqrt{676} = +26$
So, $y > x$



S8. Ans.(a)
Sol. I. $x^2 + 4x + 4 = 0$
$(x + 2)^2 = 0 \Rightarrow x = -2$
II. $y^2 - 8y + 16 = 0$
$\Rightarrow (y - 4)^2 = 0 \Rightarrow y = 4$
$\therefore y > x$

S9. Ans.(d)
Sol. I. $x^2 - (16)^2 = (23)^2 - 56$
or $x^2 - 256 = 529 - 56$
$\therefore x = \sqrt{729} = \pm 27$
II. $y^{1/3} - 55 + 376 = (18)^2$
or $y^{1/3} = 324 + 55 - 376$
$\therefore y = (3)^3 = 27$
$\therefore y \geq x$

S10. Ans.(d)
Sol. I. $x^2 - 19x + 84 = 0$
$x^2 - 7x - 12x + 84 = 0$
$(x - 7)(x - 12) = 0$
$\therefore x = 7, 12$
II. $y^2 - 25y + 156 = 0$

$y^2 - 13y - 12y + 156 = 0$
$(y - 13)(y - 12) = 0$
$\Rightarrow y = 13, 12$
$\therefore x \leq y$

S11. Ans.(b)
Sol.
I. 3x + 5y = 28 ...(i)
II. 8x – 3y = 42 .....(ii)
Multiplying (i) by 3 and (ii) by 5

$$\begin{array}{r} 9x+15y=84 \\ 40x-15y=210 \\ \hline 49x \quad\quad = 294 \end{array}$$

$x = 6$
18 + 5y = 28
y = 2
$\therefore$ x > y

S12. Ans.(e)
Sol.
I. $6x^2 + 23x + 20 = 0$
$6x^2 + 15x + 8x + 20 = 0$
3x (2x + 5) +4(2x + 5) = 0
$\therefore x = \frac{-5}{2}\ or \frac{-4}{3}$
II. $6y^2 + 31y + 35 = 0$
$6y^2 + 21y + 10y + 35 = 0$
3y (2y + 7) + 5(2y + 7) = 0
$y = \frac{-7}{2}\ or \frac{-5}{3}$
No relation

S13. Ans.(b)
Sol.
I. $4x^2 – 25x + 39 = 0$
$4x^2$ - 13x – 12x + 39 = 0
x (4x - 13) – 3 (4x - 13) = 0
$x = \frac{13}{4}\ or\ 3$
II. $18y^2$ - 15y + 3 = 0
$18y^2$ - 9y – 6y + 3= 0
9y (2y - 1) – 3 (2y - 1) = 0
$y = \frac{1}{2} or \frac{1}{3}$
x > y

S14. Ans.(e)
Sol.
I. $x^2 - x - 72 = 0$
$x^2 - 9x + 8x - 72 = 0$
$x(x - 9) + 8(x - 9) = 0$
$x = 9$ or -8
II. $y^2 = 64$
$y = \pm 8$
No relation

S15. Ans.(d)
Sol.
I. $30x^2 + 11x + 1 = 0$
$30x^2 + 5x + 6x + 1 = 0$
$5x(6x + 1) + 1(6x + 1) = 0$
$x = -\frac{1}{6}\ or\ -\frac{1}{5}$
II. $42y^2 + 13y + 1 = 0$
$42y^2 + 6y + 7y + 1 = 0$
$6y(7y + 1) + 1(7y + 1) = 0$
$y = -\frac{1}{7}\ or\ -\frac{1}{6}$
$y \geq x$

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