

Quiz Date: 22nd April 2020

Directions (1-4): In the following questions, two quantities (I) and (II) are given. You have to solve and compare the numerical value of both the quantities and mark the appropriate option.

Q1. $3A$ pipes can fill a tank in $\frac{A}{4}$ hours while $2B$ pipes can fill same tank in $\frac{2B}{3}$ hours.

Quantity I: Value of ' $A + 5$ '.

Quantity II: Value of ' $B - 2$ '

- (a) Quantity I \geq Quantity II
- (b) Quantity I = Quantity II or No relation
- (c) Quantity I $>$ Quantity II
- (d) Quantity I $<$ Quantity II
- (e) Quantity I \leq Quantity II

Q2. $2x^2 + 7x + 5 = 0$ and
 $16^{(y+1)} \div 2^{(y+2)} = 8^{(y+3)} \div 2^{(y+1)}$

Quantity I: Value of x .

Quantity II: Value of y .

- (a) Quantity I $>$ Quantity II
- (b) Quantity I $<$ Quantity II
- (c) Quantity I \geq Quantity II
- (d) Quantity I \leq Quantity II
- (e) Quantity I = Quantity II or no relation

Q3. **Quantity I** \rightarrow The profit earned by selling an item (in Rs), if the SP is more than CP by $117\frac{2}{3}\%$ of Rs600.

Quantity II \rightarrow The cost price of an article (in Rs), if the selling price of the article is Rs1000 and he got 25% profit after selling the item.

- (a) Quantity I $>$ Quantity II
- (b) Quantity I $<$ Quantity II
- (c) Quantity I \geq Quantity II
- (d) Quantity I = Quantity II
- (e) No relation

Q4. **Quantity I** – A bag contains four green pens, three red pens and five blue pens. If three pens taken out at random what is probability of at least one pen is green and at least one pen is blue color.

Quantity II – There are five red balls and six green balls. What will be the probability of selection of four balls which contains at least two green balls?

- (a) Quantity I $>$ Quantity II
- (b) Quantity I $<$ Quantity II
- (c) Quantity I \geq Quantity II
- (d) Quantity I \leq Quantity II

(e) Quantity I = Quantity II or no relation

Directions (5 - 10): In the following 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 the relationship between x and y cannot be established.

Q5. I. $6x^2 = 11x - 4$

II. $2y^2 = 15y + 8$

Q6. I. $x^2 - 11x + 24 = 0$

II. $2y^2 - 9y + 9 = 0$

Q7. I. $x^3 \times 13 = x^2 \times 247$

II. $y^{1/3} \times 14 = 294 \div y^{2/3}$

Q8. I. $\frac{12 \times 4}{x^{4/7}} - \frac{3 \times 4}{x^{4/7}} = x^{10/7}$

II. $y^3 + 783 = 999$

Q9. I. $x^2 - 13x - 48 = 0$

II. $y^2 - y - 72 = 0$

Q10. I. $14x^2 - 37x + 24 = 0$

II. $28y^2 - 53y = -24$

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Directions (11-15): In the following questions, two quantities (I) and (II) are given. You have to solve and compare the numerical value of both the quantities and mark the appropriate option.

Q11. Volume and curved surface area of cylinder is 11550cm^3 and 1320cm^2 respectively.

Quantity I: Radius of cylinder.

Quantity II: Height of cylinder.

(a) Quantity I > Quantity II

- (b) Quantity I < Quantity II
- (c) Quantity I \leq Quantity II
- (d) Quantity I \geq Quantity II
- (e) Quantity I = Quantity II

Q12. **Quantity I, (x):** $x^2 - 15x + 56 = 0$

Quantity II, (y): $y^2 - 12y + 35 = 0$

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I \leq Quantity II
- (d) Quantity I \geq Quantity II
- (e) Quantity I = Quantity II

Q13. **Quantity I, (Speed of boat in still water):** A boat can cover 182 km in downstream in 7 hours and same boat in upstream (in 7 hours) can cover $15\frac{5}{13}\%$ of distance covered by it in downstream in 7 hours.

Quantity II: 16 km/hr.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I \leq Quantity II
- (d) Quantity I \geq Quantity II
- (e) Quantity I = Quantity II

Q14. **Quantity I, (x):** $44x^2 - 79x + 30 = 0$

Quantity II, (y): $15y^2 - 59y + 56 = 0$

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I \leq Quantity II
- (d) Quantity I \geq Quantity II
- (e) Quantity I = Quantity II

Q15. **Quantity I, (Difference of amount of discount allowed and profit earned):** A seller marks his article 60% above cost price and he earned 22% profit on selling the article. Selling price of the article is Rs.1830.

Quantity II, (?): 16% of 2100 = ?

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I \leq Quantity II
- (d) Quantity I \geq Quantity II
- (e) Quantity I = Quantity II

Solutions

S1. Ans.(c)

Sol.

$$\text{Total work} = 3A \times \frac{A}{4} = 2B \times \frac{2B}{3}$$

$$\Rightarrow \frac{A^2}{B^2} = \frac{16}{9}$$

$$\Rightarrow \frac{A}{B} = \frac{4}{3}$$

Let $A = 4x$ and $B = 3x$

Quantity I: $A+5 = 4x+5$

Quantity II: $B - 2 = 3x - 2$

Quantity I > Quantity II

S2. Ans.(b)

Sol.

Quantity I:

$$2x^2 + 7x + 5 = 0$$

$$2x^2 + 5x + 2x + 5 = 0$$

$$x(2x + 5) + 1(2x + 5) = 0$$

$$(2x + 5)(x + 1) = 0$$

$$x = -1 \text{ or } \frac{-5}{2}$$

Quantity II:

$$16^{(y+1)} \div 2^{(y+2)} = 8^{(y+3)} \div 2^{(y+1)}$$

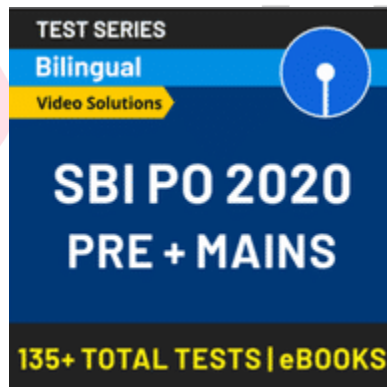
$$2^{4y+4-y-2} = 2^{3y+9-y-1}$$

$$3y + 2 = 2y + 8$$

$$\therefore y = 6$$

\therefore Quantity I < Quantity II

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S3. Ans.(b)

Sol. Quantity I $\rightarrow \frac{117 \times 3 + 2}{300} \times 600$

$$= 706 \text{ Rs}$$

Quantity II $\rightarrow x + \frac{25x}{100} = 1000$

$$x = \frac{100}{125} \times 1000$$

$$= 800 \text{ Rs}$$

\therefore Quantity I < Quantity II

S4. Ans.(b)

Sol.

Quantity I -

Required cases = (1 green, 1 red, 1 blue) or (2 green, 1 blue) or (1 green, 2 blue)

$$\begin{aligned} \text{Required probability} &= \frac{{}^4C_1 \times {}^3C_1 \times {}^5C_1}{{}^{12}C_3} + \frac{{}^4C_2 \times {}^5C_1}{{}^{12}C_3} + \frac{{}^4C_1 \times {}^5C_2}{{}^{12}C_3} \\ &= \frac{3}{11} + \frac{3}{22} + \frac{2}{11} \\ &= \frac{13}{22} \end{aligned}$$

Quantity II - Favorable case = (2G, 2R) or (3G, 1R) or 4G

$$\begin{aligned} \therefore \text{Required Probability} &= \frac{{}^6C_2 \times {}^5C_2}{{}^{11}C_4} + \frac{{}^6C_3 \times {}^5C_1}{{}^{11}C_4} + \frac{{}^6C_4}{{}^{11}C_4} \\ &= \frac{15 \times 10}{330} + \frac{20 \times 5}{330} + \frac{15}{330} \\ &= \frac{265}{330} \\ &= \frac{53}{66} \end{aligned}$$

So, Quantity I < Quantity II

S5. Ans.(e)

Sol.

$$\begin{aligned} \text{I. } 6x^2 - 11x + 4 &= 0 \\ 6x^2 - 8x - 3x + 4 &= 0 \\ 2x(3x - 4) - 1(3x - 4) &= 0 \\ x &= \frac{4}{3}, \frac{1}{2} \end{aligned}$$

$$\begin{aligned} \text{II. } 2y^2 - 15y - 8 &= 0 \\ 2y^2 - 16y + y - 8 &= 0 \\ 2y(y - 8) + 1(y - 8) &= 0 \\ y &= 8, \frac{-1}{2} \end{aligned}$$

 \therefore No relation

S6. Ans.(b)

Sol.

$$\begin{aligned} \text{I. } x^2 - 8x - 3x + 24 &= 0 & \text{II. } 2y^2 - 6y - 3y + 9 &= 0 \\ x &= 3, 8 & y &= 1.5, 3 \\ \Rightarrow x &\geq y \end{aligned}$$

S7. Ans.(c)

Sol.

$$\begin{aligned} \text{I. } \frac{x^3}{x^2} &= \frac{247}{13} & \text{II. } y^{\frac{1}{3} + \frac{2}{3}} &= \frac{294}{14} \\ x &= 19 & y &= 21 \\ \therefore x &< y \end{aligned}$$

S8. Ans.(d)

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Sol.

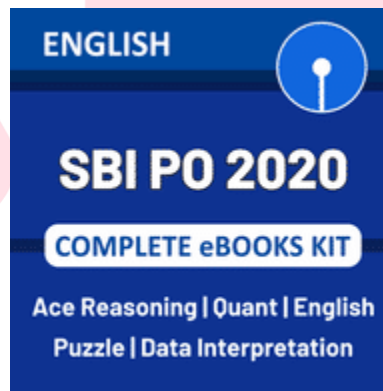
$$\begin{array}{l|l} \text{I. } \frac{48-12}{x^{\frac{4}{7}}} = x^{\frac{10}{7}} & \text{II. } y^3 = 999 - 783 \\ x^2 = 36 & y^3 = 216 \\ x = \pm 6 & y = 6 \\ \therefore x \leq y & \end{array}$$

S9. Ans.(e)**Sol.**

$$\begin{aligned} \text{I. } x^2 - 13x - 48 &= 0 \\ x^2 - 16x + 3x - 48 &= 0 \\ x(x-16) + 3(x-16) &= 0 \\ (x+3)(x-16) &= 0 \\ x &= -3, 16 \end{aligned}$$

$$\begin{aligned} \text{II. } y^2 - y - 72 &= 0 \\ y^2 - 9y + 8y - 72 &= 0 \\ y(y-9) + 8(y-9) &= 0 \\ (y+8)(y-9) &= 0 \\ y &= -8, 9 \end{aligned}$$

No relation between x and y

**S10. Ans.(b)****Sol.**

$$\begin{array}{l|l} \text{I. } 14x^2 - 37x + 24 = 0 & \text{II. } 28y^2 - 53y + 24 = 0 \\ \Rightarrow 14x^2 - 16x - 21x + 24 = 0 & \Rightarrow 28y^2 - 53y + 24 = 0 \\ \Rightarrow 2x(7x-8) - 3(7x-8) = 0 & \Rightarrow 28y^2 - 21y - 32y + 24 = 0 \\ \Rightarrow x = \frac{3}{2}, \frac{8}{7} & \Rightarrow 7y(4y-3) - 8(4y-3) = 0 \\ & \Rightarrow y = \frac{8}{7}, \frac{3}{4} \end{array}$$

 $x \geq y$ **S11. Ans.(a)**

Sol. Let radius & height of cylinder be 'r cm' & 'h cm' respectively.

Atq,

Volume of cylinder = 11550 cm^3

$$\pi r^2 h = 11550 \dots (i)$$

And curved surface area of cylinder = 1320 cm^2

$$2\pi r h = 1320 \dots (ii)$$

On solving (i) and (ii), we get:

$$r = 17.5 \text{ cm}, h = 12 \text{ cm}$$

So, **Quantity I > Quantity II.**

S12. Ans.(d)

Sol. **Quantity I:**

$$x^2 - 15x + 56 = 0$$

$$x^2 - 8x - 7x + 56 = 0$$

$$x(x - 8) - 7(x - 8) = 0$$

$$(x - 8)(x - 7) = 0$$

$$x = 8, 7$$

Quantity II:

$$y^2 - 12y + 35 = 0$$

$$y^2 - 7y - 5y + 35 = 0$$

$$y(y - 7) - 5(y - 7) = 0$$

$$(y - 7)(y - 5) = 0$$

$$y = 5, 7$$

So, **Quantity I \geq Quantity II.**

S13. Ans.(b)

Sol. **Quantity I:**

Let speed of boat in still water be 'x km/hr' and speed of stream be 'y km/hr.'

Atq,

$$\frac{182}{7} = x + y$$

$$x + y = 26 \dots (i)$$

$$\text{And } \frac{(182 \times \frac{200}{13} \times \frac{1}{100})}{7} = x - y$$

$$x - y = 4 \dots (ii)$$

On solving (i) and (ii), we get:

$$x = 15 \text{ km/hr.}$$

So, **Quantity II > Quantity I.**

S14. Ans.(b)

Sol. **Quantity I:**

$$44x^2 - 79x + 30 = 0$$

$$44x^2 - 55x - 24x + 30 = 0$$

$$11x(4x - 5) - 6(4x - 5) = 0$$

$$(4x - 5)(11x - 6) = 0$$

$$x = \frac{5}{4}, \frac{6}{11}$$

Quantity II:

$$15y^2 - 59y + 56 = 0$$

$$15y^2 - 35y - 24y + 56 = 0$$

$$5y(3y - 7) - 8(3y - 7) = 0$$

$$(3y - 7)(5y - 8) = 0$$

$$y = \frac{7}{3}, \frac{8}{5}$$

So, **Quantity II > Quantity I.**

S15. Ans.(b)

Sol. Quantity I:

Let cost price of the article be Rs. $100x$.

So, marked price of the article = $100x \times \frac{160}{100} = \text{Rs. } 160x$

And selling price of the article = Rs. 1830

$$100x \times \frac{122}{100} = 1830$$

$$x = \frac{1830}{122}$$

$$x = 15$$

So, CP of article = $100x = \text{Rs. } 1500$

And MP of article = $160x = \text{Rs. } 2400$

Required difference = $(2400 - 1830) - (1830 - 1500)$
 $= 570 - 330 = \text{Rs. } 240$

Quantity II:

$$\frac{16}{100} \times 2100 = ?$$

$$? = 336$$

So, **Quantity II > Quantity I.**



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