

Quiz Date: 29<sup>th</sup> August 2020

Q1. A alone can complete a piece of work in 4 days working 9 hours a day while B alone can complete the same piece of work in 9 days working 5 hours a day. If they work on alternate days (starting with A), then how much time they will take to complete the same work working 5 hours a day?

- (a) 4 days
- (b) 8 days
- (c) 9 days
- (d) 2 days
- (e) 6 days

Q2. Radius of a circle whose area is  $24.64 \text{ cm}^2$  is what percent of 14 cm length?

- (a) 2%
- (b) 12%
- (c) 25%
- (d) 20%
- (e) 2.5%

Q3. 8 years ago, the ratio of the ages of Rachana and Archana was 4 : 3. If the ratio of their present ages is 6 : 5 respectively, what is the ratio of the sum and difference of their present ages?

- (a) 11 : 2
- (b) 11 : 4
- (c) 11 : 1
- (d) 11 : 3
- (e) None of these

Q4. Out of the total number of students in a college 12% are interested in sports.  $\frac{3}{4}$  of the total number of students are interested in dancing. 10% of the total number of students are interested in singing and the remaining 15 students are not interested in any of the activities. What is the total number of students in the college ?

- (a) 450
- (b) 500
- (c) 600
- (d) cannot be determined
- (e) None of these

Q5. Shri Ramlal distributed his savings among his wife, two sons and one daughter in such a way that wife gets double of what each son gets and each son gets double of what the daughter gets. If the amount received by each son is Rs. 48000, what was the total amount distributed by Shri Ramlal?

- (a) Rs. 92000
- (b) Rs. 220000
- (c) Rs. 180000

- (d) Rs. 212000  
(e) None of these

**Direction (6-9):** In the following questions, two equations numbered I and II are given. You have to solve both equations and give answer among the following options.

- (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 cannot be established.

Q6. (I)  $2x^2 - 13x + 15 = 0$   
(II)  $8y^2 - 2y - 15 = 0$

Q7. (I)  $3x^2 + 2\sqrt{3}x - 8 = 0$   
(II)  $3y^2 - 4\sqrt{3}y - 5 = 0$

Q8. (I)  $\frac{x^{\frac{3}{2}}}{x^{\frac{-1}{2}}} + \frac{4x^{\frac{1}{2}}}{x^{\frac{-1}{2}}} + 4 = 0$   
(II)  $y^2 + 2y + 1 = 0$

Q9. (I)  $x^2 - 8x + 15 = 0$   
(II)  $y^2 + 8y = -7$

**Directions (10-15) :-** What approximate value should come in place of question mark (?) in following questions.

Q10. 24.97% of 1459.98 - ? % of 1120.4 = 29.04  
(a) 34  
(b) 27  
(c) 25  
(d) 20  
(e) 30

Q11.  $\sqrt{575} + \sqrt[3]{2745} - 2.01 = ?^2$   
(a) 6  
(b) 7  
(c) 9  
(d) 4  
(e) 5

Q12. 10.98% of 11.04% of 10999 = ?  
(a) 121  
(b) 130

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- (c) 137  
 (d) 133  
 (e) 127

Q13.  $\sqrt{728} + \sqrt[3]{3374} - 6.01 = ?^2$

- (a) 36  
 (b) 6  
 (c) 16  
 (d) 4  
 (e) 7

Q14. 11.01% of 19.99% of 11999=?

- (a) 122  
 (b) 221  
 (c) 384  
 (d) 264  
 (e) 542

Q15.  $169 \div \frac{8}{13}$  of  $26.019 + 2.4 = ?$

- (a) 11  
 (b) 15  
 (c) 13  
 (d) 19  
 (e) 17

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**Solutions**

S1. Ans (b)

Sol. Time taken by A to complete the work alone =  $4 \times 9 = 36$  hours

Time taken by B to complete the work alone =  $9 \times 5 = 45$  hours

Let total work be 180 units (LCM)

So, efficiency of A and B are 5 units/hour and 4 units/hour respectively.

ATQ

Two day work of A and B working 5 hours a day =  $(5 + 4) \times 5 = 45$  units

So, total time taken by them to complete the work =  $\frac{180}{45} \times 2 = 8$  days

S2. Ans.(d)

Sol. Let radius of circle = r cm

ATQ,

$$\pi r^2 = 24.64$$

$$r^2 = \frac{24.64}{22} \times 7$$

$$r^2 = 1.12 \times 7$$

$$r^2 = 7.84$$

$$r = 2.8 \text{ cm}$$

$$\begin{aligned} \text{Required percentage} &= \frac{2.8}{14} \times 100 \\ &= 20\% \end{aligned}$$

S3. Ans (c)

$$\text{Sol. } \frac{\text{Rachana's age}}{\text{Archana's age}} = \frac{6x}{5x}$$

$$8 \text{ years ago the ratio of their age} = \frac{4}{3}$$

$$\frac{6x-8}{5x-8} = \frac{4}{3}$$

$$20x - 32 = 18x - 24$$

$$2x = 8$$

$$x = 4$$

$$\text{Rachana's age} = 24 \text{ years}$$

$$\text{Archana's age} = 20 \text{ years}$$

$$\text{Required ratio} = \frac{44}{4} = \frac{11}{1}$$

S4. Ans.(b)

Sol. Let the total number of students be  $x$

$$\text{ATQ, } x - \left[ \frac{12x}{100} + \frac{3x}{4} + \frac{1}{10}x \right] = 15$$

$$\text{or, } x - \frac{97x}{100} = 15$$

$$\text{or, } 3x = 1500$$

$$\text{or, } x = 500$$

S5. Ans (e)

Sol. Let daughter's amount =  $x$

Amount of each son =  $2x$

Amount of wife =  $4x$

$$\text{Total amount} = x + (2 \times 2x) + 4x = 9x$$

$$\text{Amount of each son } 2x = 48000 = x = 24000$$

Total amount distributed by Ramlal =  $9x$

$$= 9 \times 24000 = \text{Rs. } 216000$$

S6. Ans(b)

Sol.

I

$$2x^2 - 13x + 15 = 0$$

$$2x^2 - 10x - 3x + 15 = 0$$

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

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

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

II

$$8y^2 - 2y - 15 = 0$$

$$8y^2 - 12y + 10y - 15 = 0$$

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$$(4y + 5)(2y - 3) = 0$$

$$y = \frac{3}{2}, \frac{-5}{4}$$

So,  $x \geq y$

S7. Ans(e)

Sol.

I

$$3x^2 + 2\sqrt{3}x - 8 = 0$$

$$3x^2 + 4\sqrt{3}x - 2\sqrt{3}x - 8 = 0$$

$$(\sqrt{3}x - 2)(\sqrt{3}x + 4) = 0$$

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

II

$$3y^2 - 4\sqrt{3}y - 5 = 0$$

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

$$(\sqrt{3}y + 1)(\sqrt{3}y - 5) = 0$$

$$y = \frac{5}{\sqrt{3}}, \frac{-1}{3}$$

So, There is no relation between x and y.

S8. Ans(c)

Sol.

I

$$\frac{x^{\frac{3}{2}}}{x^{\frac{-1}{2}}} + \frac{4x^{\frac{1}{2}}}{x^{\frac{-1}{2}}} + 4 = 0$$

$$x^2 + 4x + 4 = 0$$

$$(x + 2)^2 = 0$$

$$x = -2, -2$$

II

$$y^2 + 2y + 1 = 0$$

$$(y + 1)^2 = 0$$

$$y = -1, -1$$

So,  $x < y$

S9. Ans(a)

Sol.

I

$$x^2 - 8x + 15 = 0$$

$$x^2 - 8x + 15 = 0$$

$$(x - 3)(x - 5) = 0$$

$$x = 3, 5$$

II



$$y^2 + 8y = -7$$

$$y^2 + 8y + 7 = 0$$

$$y^2 + 7y + y + 7 = 0$$

$$(y + 7)(y + 1) = 0$$

$$y = -7, -1$$

so,  $x > y$

S10. Ans.(e)

Sol.

$$25\% \text{ of } 1460 - ?\% \text{ of } 1120 \approx 29$$

$$\frac{25}{100} \times 1460 - \frac{?}{100} \times 1120 \approx 29$$

$$\frac{112}{10} \times ? \approx 365 - 29$$

$$? \approx \frac{3360}{112}$$

$$? \approx 30$$

S11. Ans.(a)

Sol.

$$24 + 14 - 2 \approx ?^2$$

$$?^2 \approx 36$$

$$? \approx 6$$

S12. Ans.(d)

Sol.

$$11\% \text{ of } 11\% \text{ of } 11000 \approx ?$$

$$\frac{11}{100} \times \frac{11}{100} \times 11000 \approx ?$$

$$? \approx \frac{1331}{10}$$

$$? \approx 133$$

S13. Ans (b)

Sol.

$$\sqrt{728} + \sqrt[3]{3374} - 6.01 = ?^2$$

$$27 + 15 - 6 = ?^2$$

$$?^2 = 36$$

$$? = \pm 6$$

$$\text{So, } ? = 6$$

S14. Ans (d)

Sol.

$$11.01\% \text{ of } 19.99\% \text{ of } 11999$$

$$\frac{11}{100} \times \frac{20}{100} \times 12000$$

$$264$$

S15. Ans (c)



Sol.

$$169 \div \frac{8}{13} \text{ of } 26.019 + 2.4$$

$$169 \div \frac{8}{13} \times 26 + 2.4$$

$$\frac{169}{16} + 2.4$$

$$10.56 + 2.4$$

$$\approx 13$$

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