

Quiz Date: 23<sup>rd</sup> February 2020

Directions (1-5): What will come in the place of question mark (?) in the following questions?

Q1.  $(21)^2 - 3717 \div 59 = ? \times 8$

- (a) 43.75
- (b) 42.25
- (c) 45.75
- (d) 47.25
- (e) 44.25

Q2.  $2\frac{1}{2} - 1\frac{1}{16} = ? + 1\frac{1}{32} - 1\frac{9}{64}$

- (a)  $2\frac{9}{32}$
- (b)  $1\frac{9}{64}$
- (c)  $2\frac{5}{32}$
- (d)  $1\frac{11}{64}$
- (e)  $1\frac{35}{64}$

Q3.  $0.008 \times 0.01 \times 0.0072 \div (0.12 \times 0.0004) = ?$

- (a) 1.2
- (b) 1.02
- (c) 0.12
- (d) 0.012
- (e) 0.0012

Q4.  $8\frac{2}{7}$  of  $[4963 - 3395] + 265.75 = ? + 2455.6$

- (a) 10354.15
- (b) 10578.15
- (c) 10802.15
- (d) 11250.15
- (e) 10280.15

Q5.  $(1.06 + 0.04)^2 - ? = 4 \times 1.06 \times 0.04$

- (a) 1.0402
- (b) 1.4
- (c) 1.5
- (d) Can't be determined
- (e) 1.0404

**Directions (6-10):** 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  $x \leq y$
- (c) if  $x = y$ , or no relation can be established between  $x$  and  $y$
- (d) if  $x > y$
- (e) if  $x \geq y$

Q6. I.  $9x^2 = 1$

II.  $4y^2 + 11y - 3 = 0$

Q7. I.  $x^2 - 5 = 0$

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

Q8. I.  $x^2 - 5x - 14 = 0$

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

Q9. I.  $5x + 7y = -43$

II.  $9x - 17y = 41$

Q10. I.  $2x^2 - (4 + \sqrt{13})x + 2\sqrt{13} = 0$

II.  $10y^2 - (18 + 5\sqrt{13})y + 9\sqrt{13} = 0$

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Q11. At IIM Bangalore, 60% of the students are boys and the rest are girls. Further 15% of the boys and 7.5% of the girls are getting a fee waiver. If the number of those getting a fee waiver is 900, find the total number of students getting 50% concession, if it is given that 50% of those not getting a fee waiver are eligible to get half fee concession?

- (a) 3600

- (b) 2800
- (c) 3200
- (d) 3300
- (e) None of these

Q12. A person bought some candies and sold 80% of them at the price he paid for total candies. He sold the remaining candies at 10% profit. If the total profit is 1386 Rs. then find the cost price of the all candies.

- (a) 6300
- (b) 6100
- (c) 5700
- (d) 6500
- (e) 7500

Q13.  $S_1$  is a series of five consecutive multiple of three, whose sum is 180 and  $S_2$  is the series of four consecutive multiple of four whose second smallest number is 13 more than second highest number of  $S_1$  series. Find the average of smallest number of  $S_1$  series and highest number of  $S_2$  series.

- (a) 51
- (b) 49
- (c) 47
- (d) 45
- (e) 43

Q14. '2n' years ago ratio of Amit's age to Inder's age is 5 : 4. 'n' years ago ratio of Inder's age to Satish's age is 9 : 7. Difference between present age of Amit to Satish's present age is 12 years. Find the sum of present ages of all three if ratio of Amit's age to Satish's age after 'n' year will be 13 : 9.

- (a) 81
- (b) 84
- (c) 87
- (d) 90
- (e) Cannot be determined

Q15. A student finds the average of five two digits numbers. If One number is reversed and the average is taken again then the average increase by 5.4. If all five digits are consecutive multiple of four, then find the number which is reversed?

- (a) 58
- (b) 36
- (c) 74
- (d) 48
- (e) None of these

Q16. Mr. Suresh opened a workshop investing Rs. 40000. He invested additional amount of Rs. 12000 at the end of every year. After 2 years his brother Ramesh joined him with an amount of Rs. 85000. Thereafter Ramesh did not invested any additional amount. Find the difference between their shares in profit, if the sum of their profit at the end of 4 years is Rs. 603000.

- (a) 91000 Rs.
- (b) 95000 Rs.
- (c) 80000 Rs.
- (d) 93000 Rs.
- (e) 83000 Rs.

Q17. A started a business, B and C joined him in the 1st year ,they invested in the ratio of 5:4:7 respectively and the period for which they invested was in the ratio of 4:3:2 respectively. In the 2nd year , A doubled the investment, B and C continued with the same investment as they investor for the same no. of month as they did in 1st year. The total profit after 2 years was 14000. What is B's share of profit.?

- (a) Rs 2500
- (b) Rs 3000
- (c) Rs 3500
- (d) Rs 4000
- (e) Rs 4500

Q18. Several litres of acid drawn off a 54 litre vessel full of acid and equal amount of water added. Again, the same volume of the mixture was drawn off and replaced by water. As a result, the vessel contained 24 litres of pure acid. How much the acid was drawn off initially?

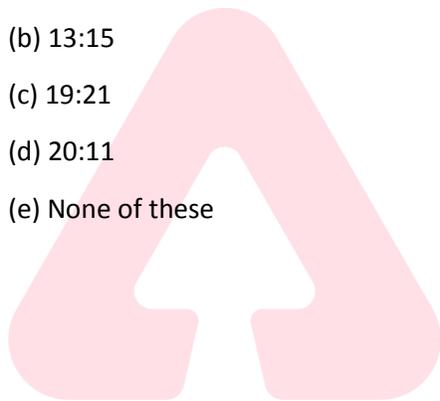
- (a) 20 litres
- (b) 17 litres
- (c) 9 litres
- (d) 18 litres
- (e) 15 litres

Q19. A jar full of whisky contains 40% alcohol. A part of this whisky is replaced by another containing 19% alcohol and now the percentage of alcohol was found to be 26%. The quantity of whisky replaced is :

- (a)  $\frac{1}{3}$
- (b)  $\frac{2}{3}$
- (c)  $\frac{2}{5}$
- (d)  $\frac{3}{5}$
- (e) None of these

Q20. There are two vessels A & D. A contains 80 litre of pure milk and D contains 44 litre of pure water. From A 16 litre is taken out and poured into D. Then 10 litre from D is taken out and poured into A. Find the ratio of amount of milk in A to amount of water in D.

- (a) 20:13
- (b) 13:15
- (c) 19:21
- (d) 20:11
- (e) None of these



S1. Ans.(d)

Sol.

$$441 - 63 = ? \times 8$$

$$? = 47.25$$

S2. Ans.(e)

Sol.

$$\frac{23}{16} = ? - \frac{7}{64}$$

$$? = \frac{23}{16} + \frac{7}{64} = \frac{92+7}{64}$$

$$? = \frac{99}{64} = 1 \frac{35}{64}$$

S3. Ans.(d)

Sol.

$$5.76 \times 10^{-7} \div (0.000048) = 0.012$$



S4. Ans.(c)

Sol.

$$\left(\frac{58}{7} \times 1568\right) + 265.75 - 2455.6 = ?$$

$$? = 13257.75 - 2455.6$$

$$? = 10802.15$$

S5. Ans.(e)

Sol.

$$(1.1)^2 - (4.24 \times 0.04) = ?$$

$$\text{Or, } ? = 1.0404$$

S6. Ans.(c)

$$\text{Sol. } x = \frac{1}{3}, \frac{-1}{3}$$

$$4y^2 + 12y - y - 3 = 0$$

$$4y(y + 3) - 1(y + 3) = 0$$

$$y = \frac{1}{4}, -3$$

So no relation can be established

S7. Ans.(a)

$$\text{Sol. } x = \sqrt{5}, -\sqrt{5}$$

$$4y^2 - 14y - 10y + 35 = 0$$



$$2y(2y - 7) - 5(2y - 7) = 0$$

$$y = \frac{5}{2}, \frac{7}{2}$$

$$x < y$$

S8. Ans.(e)

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

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

$$x = 7, -2$$

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

$$y = -2, -5$$

$$x \geq y$$

S9. Ans.(d)

Sol. Solving these equations.

$$x = -3, y = -4$$

$$x > y$$

S10. Ans.(e)

$$\text{Sol. } 2x^2 - 4x - \sqrt{13}x + 2\sqrt{13} = 0$$

$$2x(x - 2) - \sqrt{13}(x - 2) = 0$$

$$x = \frac{\sqrt{13}}{2}, 2$$

$$10y^2 - 18y - 5\sqrt{13}y + 9\sqrt{13} = 0$$

$$2y(5y - 9) - \sqrt{13}(5y - 9) = 0$$

$$y = \frac{\sqrt{13}}{2}, \frac{9}{5}$$

$$x \geq y$$

S11. Ans.(d)

Sol. Let total students are x

$$\frac{15}{100} \times \frac{60}{100}x + \frac{15}{200} \times \frac{40}{100}x = 900$$

$$\frac{9}{100}x + \frac{3x}{100} = 900$$

$$12x = 900 \times 100$$

$$x = 7500$$

$$\text{Total students getting fee waiver} = 675 + 225 = 900$$

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$$\text{Required no. of students} = \frac{(7500-900)}{2} = 3300$$

S12. Ans.(a)

Sol.

Let total candies be 100 and price per candy be x

$$\therefore \text{total C.P} = 100x$$

$$\text{Total S.P} = 100x + \frac{110}{100} \times 20x$$

$$\text{ATQ, } 1386 = (100x + 22x) - 100x$$

$$\therefore \text{required total c.p} = 100 \times \frac{1386}{22} = 6300$$

S13. Ans.(d)

Sol.

Let  $S_1$  is a series consists  $3x - 6, 3x - 3, 3x, 3x + 3, 3x + 6$

ATQ,

$$3x - 6 + 3x - 3 + 3x + 3x + 3 + 3x + 6 = 180$$

$$\Rightarrow x = 12$$

$$S_1 \text{ series} = 30, 33, 36, 39, 42$$

$$\text{Second smallest no. of } S_2 = 39 + 13 = 52$$

$$S_2 \text{ series} = 48, 52, 56, 60$$

$$\text{Required average} = \frac{30+60}{2} = \frac{90}{2} = 45$$

S14. Ans.(d)

Sol.

Let, Present age of Amit, Inder and Satish be x, y and z respectively.

ATQ,

$$\frac{x-2n}{y-2n} = \frac{5}{4}$$

$$\Rightarrow 4x - 8n = 5y - 10n$$

$$\Rightarrow 5y - 4x = 2n \dots(i)$$

$$\frac{y-n}{z-n} = \frac{9}{7}$$

$$\Rightarrow 7y - 7n = 9z - 9n$$

$$\Rightarrow 2n = 9z - 7y \dots(ii)$$

Equating (i) & (ii)

$$5y - 4x = 9z - 7y$$

$$12y = 9z + 4x$$

$$\text{And, } x - z = 12$$

$$\frac{x+n}{z+n} = \frac{13}{9}$$

$$\Rightarrow 9x + 9n = 13z + 13n$$

$$\Rightarrow 4n = 9x - 13z$$

$$9x - 13z = 18z - 14y$$

$$9x + 14y = 31z$$

$$\text{Now } x = 12 + z$$

$$9(12 + z) + 14y = 31z$$

$$\Rightarrow 22z - 14y = 108$$

$$\text{or } 11z - 7y = 54 \dots(iii)$$

$$\text{and } 10y - 8x = 9x - 13z$$

$$17x = 10y + 13z$$

$$17(12 + z) = 10y + 13z$$

$$204 + 17z = 10y + 13z$$

$$4z + 204 = 10y \dots(iv)$$

On solving (iii) and (iv)

$$y = 30, z = 24, x = 36$$

$$\text{Required sum} = 30 + 24 + 36 = 90$$

S15. Ans.(b)

Sol.

Let the number which is reversed is "10a+b"

If it is reversed then the number becomes "10b+a"

ATQ,

$$10b + a - 10a - b = 5 \times 5.4$$

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$$\Rightarrow 9b - 9a = 27$$

$$\Rightarrow b - a = 3$$

Numbers can be 14, 25, 36, 47, 58 and 69 but all the five digits are multiple of 4

$\Rightarrow$  The number should be 36

S16. Ans.(d)

Sol.

Total investment of Suresh

$$= (40000) \times 4 + (12000) \times 3 + (12000) \times 2 + (12000) \times 1$$

$$= 232000 \text{ Rs.}$$

$$\text{Total investment of Ramesh} = (85000) \times 2 = 170000 \text{ Rs.}$$

$$\text{Ratio} = 232 : 170 \text{ or } 116 : 85$$

$$\text{Difference in their shares} = \frac{116-85}{116+85} \times 603000 = 93000$$

S17. Ans.(b)

Sol.

Let their investment in 1st year =  $5x, 4x, 7x$

Time = 1 year,  $\frac{3}{4}$  year,  $\frac{1}{2}$  year

Investment in second year =  $10x, 4x, 7x$

Time = 1 year,  $\frac{3}{4}$  year,  $\frac{1}{2}$  year

Ratio of profit =  $15 : 6 : 7$

$$\text{Share of B} = \frac{6}{28} \times 14000 = 3000 \text{ Rs.}$$

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S18. Ans.(d)

Sol. Let initial quantity taken = x

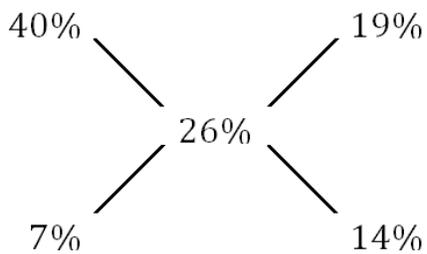
$$24 = 54 \left\{1 - \frac{x}{54}\right\}^2$$

$$\frac{4}{9} = \left\{1 - \frac{x}{54}\right\}^2$$

$$x = 18$$

S19. Ans.(b)

Sol.



1 : 2

Part of whisky replaced is  $\frac{2}{3}$

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S20. Ans.(d)

Sol. Ratio of milk & water in D after 16 l. milk is taken out from A = 16 : 44 = 4 : 11

Now, quantity of milk poured back, into A

$$= \frac{4}{15} \times 10$$

$$= \frac{8}{3} \text{ ltr.}$$

Quantity of water poured out from D

$$= \frac{11}{15} \times 10$$

$$= \frac{22}{3} \text{ ltr.}$$

Hence, quantity of milk in A =  $(80 - 16) + \frac{8}{3} = 64 + \frac{8}{3}$

$$= \frac{192 + 8}{3}$$

$$= \frac{200}{3} \text{ ltr.}$$

$$\text{Quantity of water in B} = 44 - \frac{22}{3} = \frac{132 - 22}{3}$$

$$= \frac{110}{3} \text{ ltr.}$$

$$\text{Required ratio} = \frac{200}{3} : \frac{110}{3} = 20 : 11$$



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