

**Quiz Date: 22<sup>nd</sup> June 2020**

Q1. The average age of five persons in a family is 24 years. There is a couple in the family whose ratio of ages is 4 : 5. If average age of other three members except that couple is one year more than the overall average age of all five members then what is the age of husband in couple? (age of husband > age of wife)

- (a) 24 yrs.
- (b) 25 yrs.
- (c) 20 yrs.
- (d) 23 yrs.
- (e) 21 yrs.

Q2. Akshay starts working on a job and continues for 15 days and completes 36% of the work. To complete the work, he employs Monika and together they work for 20 days and completed the work. What will be the efficiency ratio of Akshay and Monika ?

- (a) 7 : 5
- (b) 4 : 3
- (c) 5 : 3
- (d) 1 : 3
- (e) 3 : 1

Q3. The average monthly expenditure of Ravi was Rs. 1100 during the first 3 months, Rs. 2200 during the next 4 months and Rs. 4620 during the subsequent five months of the year. If the total saving during the year was Rs. 2100, find Ravi's average monthly income.

- (a) Rs. 1858
- (b) Rs. 3108.33
- (c) Rs. 3100
- (d) Rs. 3200
- (e) Rs. 2908.33

Q4. A man invests Rs. 1,200 at 10% p.a. At the end of the year he withdraws 30% of total amount and pays Rs. 24 as transaction fee from investment. At the end of 2<sup>nd</sup> year he withdraws 30% of the amount and pays Rs. 93 as transaction fee from investment. What is the balance at the end of the second year?

- (a) Rs. 660
- (b) Rs. 825
- (c) Rs. 600
- (d) Rs. 770
- (e) Rs. 870

Q5. X started from a point A towards point B. After 2 hours, Y started from B towards A. By the time X travelled one-fifth of the total distance, Y had also travelled the same. If Y's speed is thrice that of X's speed, find the difference in the times (in hours) taken by X and Y to reach their destinations.

- (a) 10
- (b) 20

- (c) 15
- (d) 25
- (e) 30

Q6. A started a work and left after working for 2 days. Then B was called and he finished the work in 9 days. Had A left the work after working for 3 days, B would have finished the remaining work in 6 days. In how many days they will finish the whole work?

- (a) 5 days
- (b)  $3\frac{3}{4}$  days
- (c)  $6\frac{2}{3}$  days
- (d)  $4\frac{2}{3}$  days
- (e)  $4\frac{3}{4}$  days



Q7. Karan and Arjun run a 100 metre race, where Karan beats Arjun by 10 metre. To do a favour to Arjun, Karan starts 10 metre behind the starting line in a second 100 metre race. They both run at their earlier speeds. Which of the following is true in connection with the second race?

- (a) Karan beats Arjun By 1 metre
- (b) Arjun beats Karan By 1 metre
- (c) Karan beats Arjun reaches at same time
- (d) Karan beats Arjun By 10 metre
- (e) None of these

Q8. An alloy contains only zinc and copper. One such alloy weighing 15 gm contains zinc and copper in the ratio of 2 : 3 by weight. If 10 gm of zinc is added then find what amount of copper has to be removed from the alloy such that the final alloy has zinc and copper in the ratio of 4 : 1 by weight?

- (a) 5 gm
- (b) 5.5 gm
- (c) 6 gm
- (d) 4.8 gm
- (e) 6.4 gm

Q9. A train can travel 20% faster than a bus. Both start from the point A at the same time and reach point B 75 km away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. Find the speed of the bus in km/hr.

- (a) 50 km/hr
- (b) 55 km/hr
- (c) 60 km/hr
- (d) 65 km/hr
- (e) 64 km/hr

Q10. A and B started a business with the investments in the ratio of 5 : 3 respectively. After 6 months from the start of the business, C joined them and the respective ratio between the investments of B and C was 2 : 3. If the annual profit earned by them was Rs. 12,300, what was the difference between B's share and C's share in the profit ?

- (a) Rs. 900
- (b) Rs. 800
- (c) Rs. 600
- (d) Rs. 400
- (e) Rs. 700

Q11. A and B together can do a piece of work in 16 days and B and C can do the same work in 24 days. From starting A and B worked for 4 days and 7 days respectively and remaining work is completed by C in 23 days, then find in how many days will C complete the work alone?

- (a) 32 days
- (b) 16 days
- (c) 8 days
- (d) 24 days
- (e) 36 days

Q12. The income of four persons are in the ratio of 7 : 4 : 8 : 10 respectively. First person spends 20% of his income second person saves 30%, 3<sup>rd</sup> person saves 40% and fourth person spends 10%. If the difference of total income of four persons and total expenditure of 4 persons is Rs 5700, what is the total income of all four persons:

- (a) 8700
- (b) 8500
- (c) 8300
- (d) 8900
- (e) 7800

Q13. In how many ways can 7 Indians, 5 Pakistanis and 6 Dutch be seated in a row so that all persons of the same nationality sit together?

- (a)  $3!$
- (b)  $7!5!6!$

- (c)  $\frac{3! \cdot 7! \cdot 5! \cdot 6!}{7! \cdot 6! \cdot 5!}$   
 (d) 182  
 (e) 3!

Q14. There are 5 red caps and 4 black caps in a sale. They have got all mixed up with each other. What is the probability of getting a matched cap if two caps are drawn at random?

- (a)  $\frac{7}{9}$   
 (b)  $\frac{4}{9}$   
 (c)  $\frac{2}{9}$   
 (d)  $\frac{5}{9}$   
 (e)  $\frac{2}{3}$

Q15. The perimeter of a square is equal to twice the perimeter of a rectangle of length of 8 cm and breadth 7 cm. What is the circumference of a semicircle whose diameter is equal to the side of the square? (Rounded off to the two decimal places)

- (a) 38.57 cms.  
 (b) 23.57 cms.  
 (c) 42.46 cms.  
 (d) 47.47 cms.  
 (e) 35.87 cms.



### Solutions

S1. Ans.(b)

Sol.

$$\begin{aligned} \text{The total age of couple} &= 24 \times 5 - 3 \times 25 \\ &= 120 - 75 \\ &= 45 \text{ years} \end{aligned}$$

$$\therefore \text{Age of husband} = \frac{5}{9} \times 45 = 25 \text{ years}$$

S2. Ans.(e)

Sol.

Akshay: 15 days  $\rightarrow$  36% of the work

$\therefore$  20 days  $\rightarrow$  48% of the work

Total work done by Akshay = 48% + 36% = 84%

Which means Monika did only 16% of the work in 20 days while comparing the working efficiency

	Akshay	Monika
In 20 days,	48%	16%
$\therefore$ <b>Efficiency</b>	<b>3</b>	<b>1</b>

S3. Ans.(b)

Sol.

Average monthly income of Ravi

$$= \frac{1}{12} \times (1100 \times 3 + 2200 \times 4 + 4620 \times 5 + 2100)$$

$$= \frac{1}{12} \times 37,300$$

$$= \text{Rs. } 3108.33$$

S4. Ans.(c)

Sol.

At the end of first year, balance =  $1200 \times \frac{110}{100}$

$$= 1320$$

$\therefore$  Remaining balance at the end of first year

$$= 1320 - 1320 \times \frac{30}{100} - 24$$

$$= 900$$

After 2<sup>nd</sup> year remaining balance

$$= 900 \times 1.1 - 90 \times 1.1 \times \frac{30}{100} - 93$$

$$= 600$$

S5. Ans.(a)

Sol.

Let total distance = d km

Let X's speed = x km/h

Y's speed = 3x km/h

ATQ,

$$\frac{d}{5x} = \frac{d}{5 \times 3x} + 2$$

$$\Rightarrow \frac{2d}{15x} = 2$$

$$\Rightarrow d = 15x \text{ km}$$

$$\therefore \text{Required answer} = \frac{15x}{x} - \frac{15x}{3x}$$

$$= 10 \text{ hours}$$

S6. Ans.(b)

Sol.

Let a takes x days and B takes y days to finish the work individually.

$$\frac{2}{x} + \frac{9}{y} = 1 \dots\dots(i)$$

And,

$$\frac{3}{x} + \frac{6}{y} = 1 \dots\dots(ii)$$

Solving (i) and (ii) we get

$$x = 5 \text{ days}$$

$$y = 15 \text{ days}$$

∴ Time taken by both to complete the

$$\text{whole work together} = \frac{5 \times 15}{20}$$

$$= 3\frac{3}{4} \text{ days}$$

S7. Ans.(a)

Sol.

Let Karan's speed = x m/sec

Arjun's speed = y m/sec

$$\therefore \frac{100}{x} = \frac{90}{y}$$

$$\Rightarrow x = \frac{10}{9}y$$

∴ Ratio of their speeds = 10 : 9

In second race, Karan will run 110 metre while Arjun will run 99 metre.

∴ Karan beats Arjun by 1 m in second race.

S8. Ans.(a)

Sol.

$$1^{\text{st}} \text{ alloy zinc} = \frac{2}{5} \times 15 = 6$$

$$\text{Copper} = \frac{3}{5} \times 15 = 9$$

Let copper to be removed = x

Then,

$$\frac{6 + 10}{9 - x} = \frac{4}{1}$$

$$\Rightarrow 16 = 36 - 4x$$

$$\Rightarrow x = 5 \text{ gm}$$

S9. Ans.(c)

Sol.

Let speed of bus is  $x$  km/hr.

$$\therefore \text{Speed of train} = \frac{120x}{100} = \frac{6x}{5} \text{ km/hr.}$$

ATQ,

$$\frac{75}{x} - \frac{75 \times 5}{6x} = \frac{12.5}{60}$$

$$\Rightarrow \frac{75}{x} \left(1 - \frac{5}{6}\right) = \frac{5}{24}$$

$$\Rightarrow x = 15 \times 4$$

$$\Rightarrow x = 60 \text{ km/hr}$$

S10. Ans.(a)

Sol.

Let A and B invested Rs.  $5x$  and  $3x$  respectively.

$$\therefore \text{C's investment} = \frac{3}{2} \times 3x = \frac{9x}{2}$$

$\therefore$  (A's profit) : (B's profit) : (C's profit)

$$= 5x \times 12 : 3x \times 12 : \frac{9x}{2} \times 6$$

$$= 20 : 12 : 9$$

$$\text{Required difference} = \frac{12 - 9}{41} \times 12,300 = 900$$

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S11. Ans.(a)

Sol.

Let no. of days taken by A, B and C to complete the given work alone

be  $a$ ,  $b$  and  $c$  respectively.

$$\therefore \frac{1}{a} + \frac{1}{b} = \frac{1}{16} \quad \dots (i)$$

$$\frac{1}{b} + \frac{1}{c} = \frac{1}{24} \quad \dots (ii)$$

and,

$$\frac{4}{a} + \frac{7}{b} + \frac{23}{c} = 1 \quad \dots (iii)$$

Solving equation (i), (ii) and (iii) we get

$$c = 32 \text{ days}$$

S12. Ans.(a)

Sol.

Let income of four persons be  $7x$ ,  $4x$ ,  $8x$  and  $10x$  respectively.

ATQ,

$$(7x + 4x + 8x + 10x) - \left( \frac{7x}{5} + \frac{7}{10} \times 4x + \frac{6}{10} \times 8x + \frac{10x}{10} \right) = 5700$$

$$\Rightarrow 29x - 10x = 5700$$

$$\Rightarrow x = 300$$

$$\therefore \text{Total income} = 8700$$

S13. Ans.(c)

Sol.

$$\text{Required ways} = 3! \times 7! \times 5! \times 6!$$



S14. Ans.(b)

Sol.

5R cap, 4B cap

Favourable case = Either both are red or both are black

$$\begin{aligned} &= \frac{{}^5C_2}{{}^9C_2} + \frac{{}^4C_2}{{}^9C_2} \\ &= \frac{5 \times 4}{9 \times 8} + \frac{4 \times 3}{9 \times 8} \\ &= \frac{32}{72} \\ &= \frac{4}{9} \end{aligned}$$

S15. Ans.(a)

Sol.

$$\text{Perimeter of square} = 2 \times 2 \times (8 + 7)$$

$$= 60 \text{ cm}$$

$$\text{Side of square} = \frac{60}{4} = 15 \text{ cm}$$

Side of square = diameter of semicircle

$$\text{So, circumference of semicircle} = \frac{1}{2}\pi D + D$$

$$\begin{aligned} &= \frac{1}{2} \times \frac{22}{7} \times 15 + 15 \\ &= 38.57 \text{ cm} \end{aligned}$$

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