

Quiz Date: 18th September 2020

Q1. A 180 meters long train crosses another 270 meters long train running in the opposite direction in 10.8 seconds. If the speed of the first train is 60 kmph, what is the speed of the second train in kmph?

- (a) 80 kmph
- (b) 90 kmph
- (c) 150 kmph
- (d) 160 kmph
- (e) 120 kmph

Q2. The ratio between the speed of a train and a car is 16 : 15 respectively. Also, a bus covered a distance of 480 kms. In 8 hours. The speed of the bus is three-fourth the speed of the train. How much distance will the car cover in 6 hours?

- (a) 450 km
- (b) 480 km
- (c) 360 km
- (d) 380 km
- (e) 420 km

Q3. The speed of a boat in still water is 12 kmph. If the boat covers 36 km upstream in 4 hours, what is the speed of stream?

- (a) 3 km/hr
- (b) 4km/hr
- (c) 5km/hr
- (d) 2km/hr
- (e) None of these

Q4. Two guns are fired from the same place at an interval of 6 minutes. A person approaching the place observes that 5 minutes 52 seconds have elapsed between the hearing of the sound of the two guns. If the velocity of the sound is 330 m/s, the man was approaching that place at what speed (in kmph)?

- (a) 24
- (b) 27
- (c) 30
- (d) 36
- (e) 46

Q5. Two trains P and Q start at the same time from two stations A and B respectively which are 200 km apart and travelling towards each other meet at a distance of 150 km from station A. What is the ratio of speed of train P to train Q?

- (a) 3 : 1
- (b) 1 : 4
- (c) 1 : 2
- (d) 4 : 1
- (e) 5 : 2

Q6. A person covers a distance of 100 km in 10 hours partly by walking at 7 kmph and the rest by running at 12 kmph. Find the distance covered in each part.

- (a) 72 km, 28 km
- (b) 50 km, 50 km
- (c) 28 km, 72 km
- (d) 32 km, 68 km
- (e) None of these

Q7. A train passes two persons who are walking in the direction opposite to the direction of train at the rate of 10 m/s and 20 m/s respectively in 12 seconds and 10 seconds, respectively. Find the length of the train.

- (a) 500 meter
- (b) 900 metre
- (c) 400 metre
- (d) 600 metre
- (e) 650 metre

Q8. A car driver covers a distance between two cities at a speed of 60 kmph and on the return his speed is 40 kmph. He goes again from the 1st to the 2nd city at twice the original speed and returns at half the original return speed. Find his average speed for the entire journey.

- (a) 55 kmph
- (b) 50 kmph
- (c) 48 kmph
- (d) 40 kmph
- (e) 45 kmph

Q9. The distance between two stations A and B is 138 km. A train starts from A towards B and another from B to A at the same time and they meet after 6 hours. The train travelling from A to B is slower by 7 kmph compared to other train from B to A, then find the speed of the slower train?

- (a) 10 kmph
- (b) 8 kmph
- (c) 12 kmph
- (d) 15 kmph
- (e) 18 kmph

Q10. A boat while travelling upstream covers a distance of 18 km at the speed of 3 km/h, whereas while travelling downstream it covers the same distance at a speed of 9 km/h. What is the speed of the boat in still water?

- (a) 3 km/h
- (b) 5 km/h
- (c) 7 km/h
- (d) Cannot be determined
- (e) 6 km/h

Q11. Arun and Bhaskar start from place P at 6:00 am and 7 : 30 am, respectively and run in the same direction. Arun and Bhaskar run at 8 kmph and 12 kmph, respectively. Bhaskar overtakes Arun at:

- (a) 10 : 30 am
- (b) 9 : 00 am
- (c) 11 : 30 am
- (d) 1 : 00 pm
- (e) 12 : 30 pm

Q12. Two trains P and Q are running in opposite direction to each-other. The length of train P is 240 metres and speeds of trains P and Q are 72 kmph and 90 kmph respectively. If trains took 15 seconds to cross each other and train Q crosses a tunnel in 24 seconds, what is the length of the tunnel?

- (a) 150 m
- (b) 165 m
- (c) 200 m
- (d) 125 m
- (e) 250 m

Q13. A car runs at the speed of 40 km/h when not serviced and runs at 65 km/h, when serviced. After servicing the car covers a certain distance in 5 h. How much approximate time will the car take to cover the same distance when not serviced?

- (a) 10
- (b) 7
- (c) 12
- (d) 8
- (e) 6

Q14. A 180 m long train crosses another 270 m long train running in the opposite direction in 10.8 seconds. If the shorter train crosses a pole in 12 seconds, what is the speed of longer train ?

- (a) 98 km/hr
- (b) 96 km/hr
- (c) 90 km/hr
- (d) 88 km/hr
- (e) None of these

Q15. The distance between two places A and B is 320 km. A car departs from place A for place B at a speed of 55 kmph at 7 am. Another car departs from place B for place A at a speed of 45 kmph at 11 am. At what time will both the cars meet each other?

- (a) 11 am
- (b) 12 noon
- (c) 1 pm
- (d) 12 : 30 pm
- (e) 1 : 30 pm

Solutions

S1. Ans.(b)

Sol.

Let speed of another train is x kmph

$$\therefore \frac{180 + 270}{(x + 60) \times \frac{5}{18}} = 10.8$$

$$\Rightarrow 450 \times 18 = 54(x + 60)$$

$$\Rightarrow x + 60 = 150$$

$$\Rightarrow x = 90 \text{ kmph}$$

S2. Ans.(a)

Sol.

Let speed of train and car are $16x$ and $15x$

$$\text{Since, speed of bus} = \frac{480}{8} \text{ kmph}$$

$$= 60 \text{ kmph}$$

$$\therefore \text{Speed of train} = 60 \times \frac{4}{3}$$

$$= 80 \text{ kmph}$$

$$\therefore \text{Speed of car} = \frac{15}{16} \times 80$$

$$= 75 \text{ kmph}$$

$$\therefore \text{Distance travelled by car in 6 hours}$$

$$= 75 \times 6 = 450 \text{ km}$$

S3. Ans.(a)

Sol.

Let speed of stream = S km/hr

$$\therefore (12 - S) \times 4 = 36$$

$$\Rightarrow S = 3 \text{ km/hr}$$

S4. Ans.(b)

Sol. Difference of time = 6 minutes - 5 minutes 52 seconds = 8 seconds

Distance covered by man in 5 minutes 52 seconds

= Distance covered by sound in 8 seconds

$$= 330 \times 8 = 2640 \text{ metre}$$

$$\therefore \text{Speed of man} = \frac{2640 \text{ metre}}{5 \text{ minutes } 52 \text{ seconds}}$$

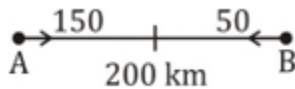
$$= \frac{2640}{352} \text{ m/s} = \frac{2640}{352} \times \frac{18}{5} \text{ kmph}$$

$$= 27 \text{ kmph}$$

Ratio of distance covered by train P to train Q = $150 : 50 = 3 : 1$ So, ratio of speed of train P to train Q = $3 : 1$

S5. Ans.(a)

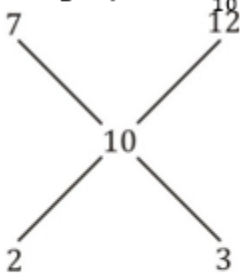
Sol.



S6. Ans.(c)

Sol.

$$\text{Average speed} = \frac{100}{10} = 10 \text{ kmph}$$



Ratio of time taken at 7 kmph to 12 kmph = 2 : 3

$$\text{Time taken at 7 kmph} = \frac{2}{2+3} \times 10 = 4 \text{ hours.}$$

$$\text{Distance covered at 7 kmph} = 7 \times 4 = 28 \text{ km.}$$

$$\text{Distance covered at 12 kmph} = 100 - 28 = 72 \text{ km.}$$

S7. Ans.(d)

Sol.

Let the speed of the train be x m/s

According to the question,

$$(x + 10) \times 12 = (x + 20) \times 10$$

$$\Rightarrow 6x + 60 = 5x + 100$$

$$\Rightarrow x = 100 - 60 = 40 \text{ m/s}$$

$$\therefore \text{Length of the train} = (x + 10) \times 12$$

$$= (40 + 10) \times 12 = 600 \text{ metre}$$

S8. Ans.(d)

Sol.

Required average speed

$$= \frac{4}{\frac{1}{60} + \frac{1}{40} + \frac{1}{120} + \frac{1}{20}}$$

$$= \frac{4 \times 120}{12} = 40 \text{ kmph}$$

S9. Ans.(b)

Sol.

Let the speed of slower train be x kmph

Then, speed of faster train = $(x + 7)$ kmph

As the trains are moving in opposite directions:

Relative speed = $x + (x + 7) = (2x + 7)$ kmph

$$\text{Time taken} = \frac{\text{Distance travelled}}{\text{Relative speed}} \Rightarrow 6$$

$$= \frac{138}{(2x+7)} = 2x + 7 = \frac{138}{6}$$

$$\Rightarrow 2x + 7 = 23 \Rightarrow 2x = 23 - 7$$

$$\therefore x = \frac{16}{2} = 8 \text{ kmph}$$

S10. Ans.(e)

Sol.

speed of boat in still water

$$= \frac{1}{2}(9 + 3) = 6 \text{ km/h}$$

S11. Ans.(a)

Sol.

Distance between Arun and Bhaskar at 7 : 30 am

$$= 8 \times 1\frac{1}{2} = 12 \text{ km}$$

Time taken by Bhaskar in covering a distance of 12 km

$$= \frac{12}{(12-8)} = 3 \text{ hours}$$

\therefore Required time = 10 : 30 am

S12. Ans.(b)

Sol.

Let length of train Q = x metre

$$\therefore (x + 240) = (72 + 90) \times \frac{5}{18} \times 15$$

$$\Rightarrow x = 675 - 240$$

$$\Rightarrow x = 435 \text{ m}$$

\therefore Length of tunnel

$$= 90 \times 24 \times \frac{5}{18} - 435$$

$$= 600 - 435$$

$$= 165 \text{ m}$$

S13. Ans.(d)

Sol.

After servicing speed = 65 km/h
 Time = 5 hours
 Distance = Speed \times Time = 65 \times 5 = 325 km
 Before servicing, speed = 40 km/h.
 So, time taken

$$= \frac{\text{Distance}}{\text{Speed}} = \frac{325}{40}$$

$$= 8 \text{ hours (approx.)}$$

S14. Ans.(b)

Sol.

Total Distance = 270 + 180 = 450 m
 Time taken to cross each other when moving
 in opposite direction = 10.8 s
 \therefore Relative speed of trains = $\frac{450}{10.8} \times \frac{18}{5} = 150 \text{ km/hr}$
 Speed of shorter train = $\frac{180}{12} \times \frac{18}{5} = 54 \text{ km/hr}$
 \therefore Speed of longer train = 150 - 54 = 96 km/hr

S15. Ans.(b)

Sol.

Distance travelled by the first car in 4 hours
 = Speed \times Time = 55 \times 4 = 220 km
 Remaining distance = 320 - 220 = 100 km
 Time for both cars to meet = $\frac{\text{Distance}}{\text{Relative Speed}}$

$$= \frac{100}{55+45} = \frac{100}{100} = 1 \text{ hour}$$
 \therefore Both the cars will meet after 1 hours
 means at (11am + 1) = 12 noon.

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