"ONE LIFE. LIVE MORE."

USE CODE :ST26

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Practice Paper I Speed Time and Distance

01

The speed of a train is 60 km/hr and its length is 500 meters. What is the time taken by the train to cross a pole?

○ 18 seconds

○ 30 seconds

○ 24 seconds

○ 36 seconds

ANS - (B)

Given:

Speed of the train = 60 kmph

Length of train = 500 meters

Formula Used:

Time taken by train to cross a pole = Length of train/Speed of train

Calculation:

Speed of train = 60kmph = 60 x 5/18 = 50/3 m/sec

Time taken by train to cross a pole = Length of train/Speed of train

⇒ 500/(50/3)

⇒ (500 x 3)/50

⇒ 10 x 3

⇒ 30 sec

∴ **Time taken by the train to cross a pole is 30 seconds.**

02

A man completed a journey in 10 hours. He travelled first half of the total distance at the rate of 21 km/hr and second half at the rate of 24 km/hr. What is the total distance he travelled in kilometer?

○ 220 km

○ 224 km

○ 230 km

○ 234 km

ANS - (B)

Given:

Total time taken = 10 hours

Speed at first half = 21 km/hr

Speed at second half = 24 km/hr

Formula Used:

Time = Distance/Speed

Calculation:

Let the total distance travelled by man be x km.

According to the question,

$$\Rightarrow \frac{\frac{x}{2}}{21} + \frac{\frac{x}{2}}{24} = 10$$

$$\Rightarrow \frac{x}{21} + \frac{x}{24} = 10 \times 2$$

$$\Rightarrow \frac{8x + 7x}{168} = 20$$

$$\Rightarrow 15x = 20 \times 168$$

$$\Rightarrow x = 224 \text{ km}$$

∴ **The total distance by man travelled is 224 km.**

03

A boat goes against the water current at 8 km/h and in the direction of the current at 14 km/h. The boat takes 5 h and 30 min to move upstream from P to Q and come back to P. What is the distance between P and Q?

○ 10 km

○ 25 km

○ 18 km

○ 28 km

ANS - (D)

Given:

A boat goes against the water current at 8 km/h and in the direction of the current at 14 km/h.

The boat takes 5 h and 30 min to move upstream from P to Q and come back to P.

Concept used:

Time = Distance/Speed

Calculation:

Let the distance be x

According to the question,

$\frac{x}{8} + \frac{x}{14} = 5.5$

$\Rightarrow \frac{7x+4x}{56} = 5.5$

$\Rightarrow \frac{11x}{56} = 5.5$

$\Rightarrow 11x = 308$

$\Rightarrow x = 308/11 = 28$

So, the distance = 28 km

∴ The distance between P and Q is 28 km.

04

P covers half of the distance at the speed of 10 kmph and the other half at the speed of 12 kmph and completes the whole journey in 11 hours. Find the total distance covered by P.

- ○ 120 km

- ○ 100 km

- ○ 115 km

- ○ 110 km

ANS - (A)

Given:

Total time of journey = 11 hour

Half distance is covered by = 10kmph

And rest half is covered by = 12kmph

Formula used:

Speed = Distance / Time

Calculation:

Let the total distance be 2x

According to the question

$\Rightarrow$ x/10 + x/12 = 11

$\Rightarrow$ 6x + 5x / 60 = 11

$\Rightarrow$ 11x/60 = 11 = 60

$\Rightarrow$ 2x = 2 × 60 = 120

∴ **The total distance covered by 120.**

05

A person travels from A to B at a speed of 30 km/h and returns at a speed of 45 km/h. What is the average speed in km/h during the whole journey?

○ $15\sqrt{6}$

○ 37.5

○ $18\sqrt{6}$

○ 36

ANS - (D)

Given:

From A to B, speed = d = 30 km/h

From B to A, speed = p = 45 km/h

Concept used:

Average speed = 2dp/(d + p)

Calculation:

Average speed = (2 x 30 x 45)/(30 + 45)

⇒ 2700/75

⇒ 36

Therefore, the correct answer is 36

06

The speed of a boat when travelling downstream is 79 km/h and when travelling upstream is 21 km/h. What is the speed of the boat in still water?

○ 35 km/h

○ 100 km/h

○ 29 km/h

○ 50 km/h

ANS - (D)

Given:

The speed of a boat when travelling downstream is 79 km/h and when travelling upstream is 21 km/h.

Concept used:

Downstream = u + v

Upstream = u - v

u = speed of the boat in still water

v = speed of the stream

Calculation:

Downstream speed = 79 = u + v   ----(i)

Upstream speed = 21 = u - v   ----(ii)

Now,

From eq (i) and (ii) we get,

2u = 100

⇒ u = 50

So, the speed of the boat in still water is 50 km/h

∴ **The required answer is 50 km/h.**

07

A truck covers a distance of 550 meters in 1 minute, whereas a bus covers a distance of 33 km in 45 minute. The ratio of their speed is:

○ 3 : 5

○ 2 : 7

○ 2 : 1

○ 3 : 4

ANS - ()

Given:

The truck covers a distance = 550 meters

Formula used:

$S = \frac{D}{T}$ Where, S = Speed, D = Distance, and T = Time

Calculation:

Let the ratio of their speed be X : Y.

The speed of the Truck = $\frac{550}{60} = \frac{55}{6}$

The speed of the Bus = $\frac{33000}{45 \times 60} = \frac{33000}{2700}$

The ratio of their speed = $\frac{55}{6} \times \frac{2700}{33000} = \frac{3}{4}$

The require ratio = X : Y = 3 : 4

∴ **The required result will be 3 : 4.**

08

A run $1\frac{2}{3}$ times as fast as B. If A gives B a start of 80 m, how far must the winning post from the starting point be so that A and B might reach it at the same time?

○ 200 m

○ 300 m

○ 270 m

○ 160 m

ANS - (A)

Given:

A run $1\frac{2}{3}$ times as fast as B.

If A gives B a start of 80 m

Calculation:

Speed A = 2(1/2) times of B

Ratio of speed A to B = 5 : 3

According to the question,

In race of 5 m,

A gains = 5 – 3 = 2m over B

2 m are gained by A in a race of 5 m

⇒ 80 m will be gained by A in a race

⇒ (80 × 5/2)m

⇒ 200 m

∴ **The winning post is 200 m away from the starting point.**

09

A man on tour travels the first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is :

○ 35.55 km/hr

○ 38 km/hr

○ 71.11 km/hr

○ 75 km/hr

ANS - (C)

Given:

Speed for first 160 km = 64 km/hr

Speed for next 160 km = 80 km/hr

Formula used:

Average speed = Total distance/Time taken

Calculation:

Time taken for first 160 km = 160/64 = 2.5 hours

Time taken for next 160 km = 160/80 = 2 hours

Total time taken = (2.5 + 2) hours = 4.5 hours

Total distance = (160 + 160) = 320 km

Average speed = 320/4.5 = 71.11 km/hr

∴ **The average speed for 320 km is 71.11 km/hr**

10

A person walks 4/5 of his usual speed and reaches his office 20 minutes late. Find his original time to reach the office.

○ 80 minutes

○ 40 minutes

○ 70 minutes

○ 75 minutes

ANS - (A)

Given:

The person walks 4/5 of his usual speed.

He was a 20-minute delay.

Formula used:

Distance = Speed × Time

Calculation:

Let the distance be D and his speed be S

So, his usual time to reach the office = D/S

Now, his new speed = (4/5)S

According to the question,

$$\frac{D}{(\frac{4}{5})S} - \frac{D}{S} = 20 \text{ minutes}$$

$$\Rightarrow \frac{5D}{4S} - \frac{D}{S} = \frac{20}{60} \text{ hours}$$

$$\Rightarrow \frac{D}{4S} = \frac{1}{3} \text{ hours}$$

$$\Rightarrow \frac{D}{S} = \frac{4}{3} \text{ hours}$$

$\Rightarrow \{(4/3) × 60\}$ minutes = 80 minutes

∴ His original time to reach the office is 80 minutes.