Quiz Date: 11th August 2020

Q1. A train travels a distance of 600 km at a constant speed. If the speed of the train is increased by 5 km/hr, the journey would take 4 hrs less. Find the speed of the train.
(a) 100 km/hr
(b) 25 km/hr
(c) 50 km/hr
(d) 75 km/hr
(e) 80 km/hr

Q2. A man can swim 48 m/min in still water, he swims 200 m against the current and 200 m with the current. If the difference between those two times is 10 min, what is the speed of the current?
(a) 30 m/min
(b) 31 m/min
(c) 29 m/min
(d) 32 m/min
(e) 26 m/min

Q3. The vehicle of Mr. Ghosh needs 30% more fuel at the speed of 75 kmph than it needs at the speed of 50 kmph. At a speed of 50 kmph, Mr. Ghosh can go to a distance of 195 kms. At the speed of 75 kmph, what distance he will travel?
(a)125 km
(b)150 km
(c)140 km
(d)175 km
(e)200 km

Q4. The respective ratio between the speed of a car, a jeep and tractor is 3 : 5 : 2. The speed of the jeep is 250 percent of the speed of the tractor which covers 360 km in 12 hours. What is the average speed of the car and the jeep together?
(a) 60 km/hr.
(b) 75 km/hr.
(c) 40 km/hr.
(d) 65 km/hr
(e) 50 km/hr

Q5. A train covers 180 km distance in 4 hours. Another train covers the same distance in 1 hour less. What is the difference in the distances covered by these trains in one hour if they are moving in the same direction?
(a) 45 km
(b) 9 km
(c) 10 km
(d) 12 km
(e) 15 km

Q6. If sum of upstream and downstream speed of a boat is 82 kmph, and the boat travels 105 km. upstream in 3 hr, Find the time taken by boat to cover 126 km downstream.
(a) 126/47 hr
(b) 127/47 hr
(c) 129/47 hr
(d) 124/47 hr
(e) None of these

Q7. Vipin can walk a certain distance in 52 days when he rests 10 hours a day. How long will he take for twice the distance, if he walks twice as fast and rests twice as long each day?
(a) 104 days
(b) 26 days
(c) 78 days
(d) 182 days
(e) 140 days
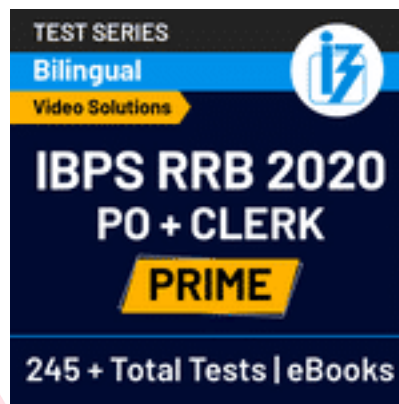
Q8. A starts driving from P to Q at 9 am and B starts driving from Q to P at 10 am B is 50% faster than A. What is the time when they meet if P and Q are 300 km apart and A's speed is 50 km/h.
(a) 12 : 30 pm
(b) 12 noon
(c) 11 : 00 am
(d) 11 : 30 am
(e) 1 : 30 pm

Q9. A man goes uphill with an average speed of 24 kmph and comes down with an average speed of 36 kmph. The distance travelled in both the cases being the same, the average speed for the entire journey is:
(a) 30 kmph
(b) 28.8 kmph
(c) 32.6 kmph
(d) 24.4 kmph
(e) 26 kmph

Q10. Ravi travels 300 km partly by train and partly by car. He takes 4 hours to reach, if he travels 60 km by train and rest by car. He will take 10 minutes more if he were to travel 100 km by train and rest by car. The speed of the train is:
(a) 50 kmph
(b) 60 kmph
(c) 100 kmph
(d) 120 kmph
(e) 140 kmph

Q11. Raja was on a long distance trip. He travelled by air 2/5 of the distance which was 1200 km. Then, he hired a car and travelled 1/3 of the whole trip. Thereafter, he completed the rest of the journey by train. Calculate the distance that Raja travelled by train.
(a) 480 km
(b) 800 km
(c) 1600 km
(d) 1800 km
(e) 1200 km

Q12. A boat takes 9 hr to travel a distance upstream and takes 3 hr to travel the same distance downstream. If the speed of the boat in still water is 4 kmph, then what is the speed of the stream?
(a) 4 kmph
(b) 3 kmph
(c) 6 kmph
(d) 2 kmph
(e) 8 kmph

Q13. A boat takes 9 hr to travel a distance upstream and takes 3 hr to travel the same distance downstream. If the speed of the boat in still water is 4 kmph, then what is the velocity of the stream?
(a) 4 kmph
(b) 3 kmph
(c) 6 kmph
(d) 2 kmph
(e) 8 kmph

Q14. A boat has to travel upstream 20 km distance from point X of a river to point Y. The total time taken by boat in travelling from point X to Y and Y to X is 41 min 40 s. What is the speed of the boat?
(a) 66 kmph
(b) 72 kmph
(c) 48 kmph
(d) Cannot be determined
(e) None of these

Q15. A train overtakes two persons walking along a railway track. The first one walks at 4.5 kmph. The other one walks at 5.4 kmph. The train needs 8.4 and 8.5 seconds respectively to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train?
(a) 66 kmph
(b) 72 kmph
(c) 78 kmph
(d) 81 kmph
(e) 91 kmph

Solutions

S1. Ans.(b)
Sol.
Using formula,
$$\frac{S(S+5)}{5} \times 4 = 600$$
$$S(S+5) = 750 = 25\,(25+5)$$
Speed of the train = 25 km/hr
Alternately,
$$\frac{600}{s} - \frac{600}{s+5} = 4$$
$$\frac{600s + 3000 - 600s}{s(s+5)} = 4$$
$$s = 25\ km/hr$$

S2. Ans.(d)
Sol.
$$\frac{200}{48-V} - \frac{200}{48+V} = 10$$
Or, $20(48 + V) - 20(48 - V) = 48^2 - V^2$
Or, $V^2 + 40V - 2304 = 0$
Or, V = 32 m/min.

S3. Ans.(b)
Sol. The only thing which matters in this problem is mileage or kms per litre of the fuel. At 50 kmph, 195 kms can be covered.
According to given condition, 1.3 times the fuel will be required at 75 kmph.
Hence, distance travelled will be 195/1.3 = 150 kms

S4. Ans.(a)
Sol.

$$\text{Speed of tractor} = \frac{360}{12} = 30 \text{ km/hr}$$

$$\text{Speed of Jeep} = \frac{250}{100} \times 30 = 75 \text{ km/hr}$$

$$\therefore \text{ Speed of car} = \frac{3}{5} \times 75 = 45 \text{ km/hr}$$

$\therefore$ Required average speed

$$= \frac{75 + 45}{2} = 60 \text{ km/hr}$$

S5. Ans.(e)
Sol.
First train speed = 45 km/hr
2nd train speed = 60 km/hr
$\therefore$ Differencein distance covered in 1 hr = 15 km

S6. Ans.(a)
Sol.
U = upstream speed $\Rightarrow$ (b – w)
D = downstream speed $\Rightarrow$ (b + w)
b = speed of boat in still water
w = speed of stream
$\therefore$ u + d = 82
b – w + b + w = 82
b = 41
 ATQ,
$$41 - w = \frac{105}{3} = 35$$
w = 6 kmph
$$b + w = \frac{126}{t}$$
$$t = \frac{126}{47} \text{hr.}$$

S7. Ans.(d)

Sol.
Vipin walk a certain distance in 52 days
So, total time = 52 × 24 = 1248 hours
⇒ He takes rest 10 hours per day
So, total rest = 10 × 52 = 520 hours in 52 days
So, he works = 1248 – 520 = 728 hours
⇒ Speed (S) = $\frac{x}{728}$
⇒ x = 728 × Speed (S) ....(i)
According to question,
2x = 2S × 4D
(where, D = number of days taken by him
to complete the distance)
x = 4SD
Using equation (i) and (ii), we get
4SD = 728 × S ⇒ D = 182 days

S8. Ans.(b)
Sol.

PQ = 300 km

P •————————————• Q

at 9 am ⟶   ⟵ 10 am
     50 km/h
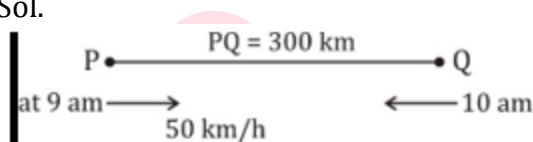
Distance travelled by A in 1 hour = 50 km
∴ Remaining distance between PQ
= 300 – 50 = 250 km
B's speed = $\frac{3}{2}$ × 50
= 75 km/hr
∴ Required time = $\frac{250}{(50 + 75)}$
= 2h
i.e. meeting time = 12 noon

S9. Ans.(b)
Sol.
Average speed = $\frac{2 \times 24 \times 36}{24 + 36}$
= 28.8 km/h

S10. Ans.(b)
Sol.

Let speed of train = x km/h
Speed of car = y km/h
In first case,
$$\frac{60}{x} + \frac{240}{y} = 4$$
$$\Rightarrow \frac{15}{x} + \frac{60}{y} = 1 \quad ....(i)$$
In second case,
$$\frac{100}{x} + \frac{200}{y} = 4 + \frac{10}{60}$$
$$\Rightarrow \frac{100}{x} + \frac{200}{y} = \frac{25}{6}$$
$$\Rightarrow \frac{24}{x} + \frac{48}{y} = 1 \quad ....(ii)$$
From (i) and (ii)
$$\frac{24}{x} - \frac{15}{x} = \frac{-48}{y} + \frac{60}{y}$$
$$\Rightarrow \frac{9}{x} = +\frac{12}{y}$$
$$\Rightarrow x = \frac{3y}{4}$$
Putting this value in (i)
$$\frac{15 \times 4}{3y} + \frac{60}{y} = 1$$
$$\Rightarrow \frac{80}{y} = 1$$
$$\Rightarrow y = 80 \text{ km/h}$$
$\therefore$ speed of car $= \frac{3}{4} \times 80$
= 60 km/h

S11. Ans.(b)
Sol.
$\frac{2}{5}$ of the distance = 1200 km
$\therefore$ Whole distance = 3000 km
Distance travelled by car = 1000 km
$\therefore$ Distance travelled by train = 800 km

S12. Ans.(d)
Sol.
Let distance = d km and speed of stream = s km/hr
$\therefore$ (4 – s) × 9 = (4 + s) × 3
$\Rightarrow$ 12 – 2s = 4 + s
$\Rightarrow$ s = 2 km/hr

S13. Ans.(d)

Sol.
Let velocity of stream = s kmph
$\therefore (4 - s) \times 9 = (4 + s) \times 3$
$\Rightarrow 12 - 3s = 4 + s$
$\Rightarrow s = 2 \, kmph$

S14. Ans.(d)
Sol.
Let speed of boat in still water = v kmph
Speed of stream = s kmph
$\therefore \dfrac{20}{v-s} + \dfrac{20}{v+s} = \dfrac{25}{36}$
Here, we cannot find the required answer
as there are two variables in one equation.

S15. Ans (d)
Sol.
Let the speed of train= v kmph
Time $= \dfrac{Distance}{Velocity}$ (x = length of train)
$\dfrac{8.4}{3600} = \dfrac{x}{v-4.5}$ .....(i)
$\dfrac{8.5}{3600} = \dfrac{x}{v-5.4}$ ....(ii)
Dividing both the question
$\dfrac{8.4}{8.5} = \dfrac{v-5.4}{v-4.5}$ ....(iii)
By solving equation (iii)
v = 81 kmph

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