Quiz Date: 27th February 2020

Q1. Ratio between length of two trains X & Y is 4 : 5 and both the trains are running at the speed of 90 km/hr and 117 km/hr respectively. If both the trains are running in opposite direction, they crossed each other in $\frac{144}{23}$ sec, then find in what time both trains will cross each other when running in same direction?
(a) 42 sec
(b) 52 sec
(c) 56 sec
(d) 46 sec
(e) 48 sec

Q2. Two cars, an Alto and a Swift, start at the same time in opposite directions from two distinct points P and Q. Starting from P, the Alto reaches Q in 6 hrs 20 minutes and the Swift starting from Q, reaches P in 4 hrs 45 minutes. What is the speed of the Swift, if the speed of the Alto is 60 Km/h?
(a) 110 Km/h
(b) 100 Km/h
(c) 90 Km/h
(d) 80 Km/h
(e) 70 km/h

Q3. A man can row 40 Km upstream and 55 Km downstream in 13 h. Also, he can row 30 km upstream and 44 Km downstream in 10 h. Find the speed of the man in still water.
(a) 5 Km/h
(b) 2 Km/h
(c) 4 Km/h
(d) 6 Km/h
(e) 8 km/h

Q4. Two horse can complete a race of 5.4 km in 9 min and 6 min respectively. On a particular day, the faster horse gives a lead of 600 meters to the slower horse for race of 5.4km and both horses reach the destination at same time, then calculate the speed of slower horse on that day if faster horse ran with his usual speed?
(a) 54 km/hr
(b) 48 km/hr
(c) 36 km/hr
(d) can't be determined
(e) 72 km/hr

Q5. Two trains P and Q start running from Kanpur to Bhopal and Bhopal to Kanpur respectively. Both trains start at 8:00 A.M. If the distance between Bhopal and Kanpur is 720 km and if speeds of train P and Q is 80 km/hr and 90 km/hr respectively, then at what distance from Kanpur both trains meet?
(a) 340 km

(b) $\frac{6540}{17}$ km
(c) $\frac{6480}{17}$ km
(d) $\frac{5760}{17}$ km
(e) None of these

Q6. A train, an hour after starting, meets with an accident which detains it for half an hour, after which it proceeds at $\frac{3}{4}$ of its former rate and arrives $3\frac{1}{2}$ hrs late. Had the accident happened 90 Km farther along the line, it would have arrived only 3 hrs late. The length of the trip in kilometres was:
(a) 400
(b) 465
(c) 600
(d) 640
(e) 740

Q7. A man swims with the direction of the current from point X to Y and then returns against the current and stop at point Z. Distance between Y and Z is 75% of distance between X and Y and man takes 9 hours to cover total distance. If distance between X to Y is 40 Km and Speed of current is 2 km/hr, then find speed of man in still water?
(a) 6 km/hr
(b) 8 km/hr
(c) 4 km/hr
(d) 9 km/hr
(e) 10 km/hr

Q8. Bhuvan can swim 24 km upstream and 36 km downstream in 9 hours. If the difference between upstream speed and downstream speed of Bhuvan is 8 km/hr, then find the speed of Bhuvan in still water.
(a) 6 km/hr
(b) 9 km/hr
(c) 10 km/hr
(d) 8 km/hr
(e) 7 km/hr

Q9. Speed of a faster train is 100 km/hr and it takes 3 minutes rest after covering each 75 km distance while the slower train is running at the speed of 50 km/hr and it takes 1minute rest after covering each 25 km distance. Find the distance travelled by the slower train in the time in which faster train travels 600 km distance?
(a) 520 km
(b) 307.5 km
(c) 460 km
(d) 325 km
(e) None of these

Q10. A train travels with a speed of 20 m/s in the first 10 minutes, goes 8.5 km in the next 10 minutes, 11 km in the next 10 minutes, 8.5 km in the next 10 minutes and 6 km in the next 10 minutes. What is the average speed of the train in kilometer per hour for the journey described?
(a) 42 kmph
(b) 35.8 kmph
(c) 55.2 kmph
(d) 46 kmph
(e) 45.5 kmph

Q11. Two ants start simultaneously from two ant holes towards each other. The first ant covers 8% of the distance between the two ant holes in 3 hours, the second ant covered $\frac{7}{120}$ of the distance in 2 hours 30 minutes. Find the speed (feet/h) of the second ant if the first ant travelled 800 feet and meet the second ant.
(a) 15 feet/h
(b) 25 feet/h
(c) 45 feet/h
(d) 35 feet/h
(e) 36 feet/h

Q12. A train starts from Delhi at 6 : 00 AM and reaches Ambala Cantt at 10 AM. The other train starts from Ambala Cantt at 8 AM and reaches Delhi at 11 : 30 AM. If the distance between Delhi and Ambala Cantt. is 200 km, then at what time did the two trains meet each other?
(a) 8 : 56 AM
(b) 8 : 46 AM
(c) 7 : 56 AM
(d) 8 : 30 AM
(e) None of these

Solutions

S1. Ans. (e)
Sol.
Let length of train X & Y be 4L meter and 5L meter respectively.
A/Q,

$(90 + 117) \times \frac{5}{18} = \frac{4L+5L}{\frac{144}{23}}$

$207 \times \frac{5}{18} \times \frac{144}{23} \times \frac{1}{9} = L$

L = 40 meter

Length of train X = 160 meters

Length of train Y = 200 meters

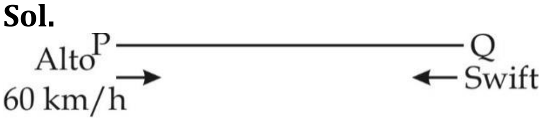
Let, when trains are running in same direction cross each other in T sec

$(117 - 90) \times \frac{5}{18} = \frac{160+200}{T}$

T = 48 sec

S2. Ans.(d)

Sol.



Distance PQ $= 60 \times 6\frac{1}{3} = 380\ km$

Speed of Swift $= \frac{380\times4}{19} = 80$ km/h

S3. Ans.(e)

Sol.

Let the upstream speed be x km/h

And the downstream speed by y km/h

Then, according to the question,

$\frac{40}{x} + \frac{55}{y} = 13 \qquad ..(i)$

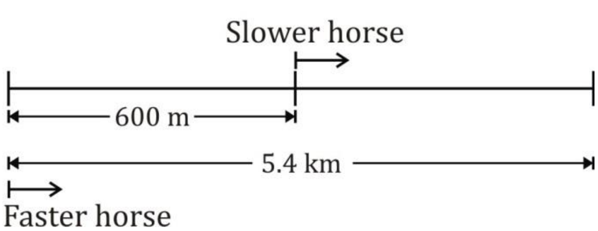
$and, \frac{30}{x} + \frac{44}{y} = 10 \qquad ...(ii)$

Solving the equations (i) and (ii), we get x = 5 and y = 11

Therefore, the speed of the man in still water $= \frac{1}{2}(x+y) = \frac{1}{2}(5+11) = \frac{16}{2} = 8$ km/h

S4. Ans.(b)

Sol.



Speed of slower horse = $\frac{5.4\times1000}{9\times60}$ = 10 m/sec

Speed of faster horse = $\frac{5400}{6\times60}$ = 15 m/sec

Let slower horse increases his speed by x m/sec to reach at same instant as faster reach

$\therefore \frac{5400}{15} = \frac{4800}{(10+x)}$

$\Rightarrow 9x = 30$

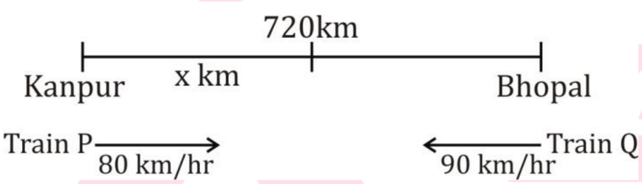
$\Rightarrow x = \frac{10}{3}$ m/sec

$x = \frac{10}{3} \times \frac{18}{5} = 12$ km/hr

$\therefore$ Required answer $= 10 \times \frac{18}{5} + 12 = 48$ km/hr

S5. Ans.(d)

Sol.



Let both trains meet at x km from Kanpur.

Time taken by train P to cover x km

= time taken by Q to cover (720 – x) km

$\Rightarrow \frac{(720-x)}{90} = \frac{x}{80}$

$\Rightarrow 9x = 5760 - 8x$

$\Rightarrow x = \frac{5760}{17}$ km

S6. Ans.(c)

Sol. Let speed be x km/hr and distance be D.

$$\frac{90}{\frac{3}{4}x} - \frac{90}{x} = \frac{1}{2}$$

$$\Rightarrow \frac{(4-3)}{3x} = \frac{1}{180}$$

$\Rightarrow x = 60$ km/hr

Now,

$$\frac{3}{2} + \frac{D-60}{45} - \frac{D}{60} = \frac{7}{2}$$

$\Rightarrow D + 30 = 630$

$\Rightarrow x = 600$ km

S7. Ans.(b)

Sol.
Let speed of man in still water be x km/hr
Water Current speed = 2 km/hr
Distance between Y to Z = $40 \times \frac{75}{100} = 30\ km$
ATQ —
$= \frac{40}{(x+2)} + \frac{30}{(x-2)} = 9$

$40x - 80 + 30x + 60 = 9x^2 - 36$
$9x^2 - 70x - 16 = 0$
x = 8 km/hr

S8. Ans.(d)
Sol.
Let speed of Bhuvan in still water be x km/hr
And speed of stream be r km/hr
ATQ,
$\frac{24}{x-r} + \frac{36}{x+r} = 9$ ...(i)
Also,
(x + r) – (x – r) = 8
or, 2r = 8
or, r = 4 km/hr
putting, r = 4 in eqn. (i),
we get, x = 8 km/hr.

S9. Ans.(b)
Sol.
Faster train will take rest
$\left(\frac{600}{75} - 1\right)$ = 7 times in the journey of 600 km.
For each 75 km distance it takes $\left(\frac{75}{100}\text{h} + 3\text{ min.}\right)$ = 48 min.
So, total time taken by faster train to cover 600 km
= (45 × 8 + 3 × 7)
= 381 min.
In this time slower train has to cover the required distance.
For 25 km, slower train takes $\left(\frac{25}{50}\text{h} + 1\text{ min.}\right)$
= (30 + 1) min. = 31 min.
So, distance covered by slower train in (31 × 12) min = 25 × 12 = 300 km
Remaining time = 381 – 372 = 9 min
∴ Required total distance covered by slower train in 381 min
= $300 + 50 \times \frac{9}{60}$
= 307.5 km

S10. Ans.(c)

Sol.

Average speed $= \frac{\text{Total distance}}{\text{Total time}}$

$= \frac{20 \times \frac{10}{60} \times \frac{18}{5} + 8.5 + 11 + 8.5 + 6}{10 + 10 + 10 + 10 + 10} \times 60$

= 55.2 kmph

S11. Ans.(d)

Sol.

Let total distance = d

Speed of first Ant $= \frac{8d}{300}$

Speed of second Ant $= \frac{7d}{300}$

$\frac{800}{8d} \times 300 = \frac{d-800}{7d} \times 300$

$\therefore d = 1500$

Speed of second ant = $7 \times \frac{1500}{300}$

=35feet/h

S12. Ans.(a)

Sol. Let the speed of first train = 50 km/hr.

the speed of second train = $\frac{400}{7}$ km/hr.

At 8 : 00 AM distance between two trains is 100 kms.

Relative velocity

$= 50 + \frac{400}{7} = \frac{350+400}{7} = \frac{750}{7}\ km/h$

Time taken = $\frac{100\times 7}{750} \times 60 = 56$ min. Hence, the two trains meet each other at 8 : 56 AM.