Quiz Date: 14th May 2020

Q1. 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) 40 km
(d) 42 km
(e) 15 km

Q2. A motorboat went downstream for 28 km and immediately returned. It took the boat twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.
(a) 9 km/hr, 3 km/hr
(b) 9 km/hr, 6 km/hr
(c) 8 km/hr, 2 km/hr
(d) 12 km/hr, 3 km/hr
(e) 15 km/hr, 5 km/hr

Q3. Two trains pass each other on parallel lines. Each train is 100 metres long. When they are going in the same direction, the faster one takes 60 seconds to pass the other completely. If they are going in opposite direction they pass each other completely in 10 seconds. Find the speed of the slower train in km/hr.
(a) 30 km/hr
(b) 42 km/hr
(c) 48 km/hr
(d) 60 km/hr
(e) 56 km/hr

Q4. In a circus there was a leopard and a tiger walking in two different rings of same radii. There I observed that when leopard moved 3 steps, tiger moved 5 steps in the same time, but the distance traversed by leopard in 5 steps in equal to the distance traversed by tiger in 4 steps. What is the number of rounds that a leopard made when tiger completed 100 rounds
(a) 120
(b) 48
(c) 75
(d) 80
(e) 72

Q5. Two trains, 100 km apart, travel towards each other on the same track. One train travels at 40 km/hr; the other travels at 60 km/hr. A bird starts flying at a speed of 90

km/hr, at the same location of the faster train. When it reaches the slower train, it turns around and flies in the opposite direction at the same speed. When it reaches the faster train, again it turns around and so on. When the two trains collide, how much distance has the bird flown?
(a) 90 km
(b) 45 km
(c) 180 km
(d) 135 km
(e) 145 km

Q6. A train can cross a platform, a tunnel and a pole in 36 sec, 24 sec and 12 sec respectively. Another train whose speed is 72km/hr can cross a pole in 8 sec. If speed of former train is four-fifth of the speed of the latter train, then find sum of length of platform and of tunnel.
(a) 476 m
(b) 676 m
(c) 576 m
(d) 756 m
(e) 572 m

Q7. A person travels one-fourth of a certain distance AE at x kmph, one-third of the remaining distance at 3x kmph and the remaining distance at 2x kmph. If his average speed for the entire journey is (x + 14) kmph, then find the total distance he covers?
(a) 31.2
(b) 36
(c) 40
(d) Can't be determined
(e) None of these

Q8. Two trains start from the station A and B and travel towards each other at speeds of 50 kmph and 60 kmph respectively. At the time of their meeting the second train has traveled 100 km more than the first. The distance between A and B is:
(a) 990 km
(b) 1200 km
(c) 1100 km
(d) 1440 km

(e) 1240Km

Q9.Speed of boat in downstream is 24 km/hr while speed of boat is 300% more than speed of stream. Find in total 6 hours, what distance can be covered by boatman if he covers half distance in downstream and half in upstream?
(a) 92km
(b) 70 km
(c) 24 km
(d) 96 km
(e) 108 km

Q10. Vikas can swim in still water with twice the speed as that of speed of water. Time difference to cover a certain distance in upstream and in downstream is 4 hours at his usual speed. But if he had doubled his usual speed, then time difference would reduce by 80% of its usual time difference to cover same distance. Calculate total time taken by Vikas to cover 6 km upstream and 2 km downstream, at his usual speed.
(a) 1 hour
(b) $\frac{3}{4}$ hour
(c) $\frac{5}{4}$ hour
(d) $\frac{4}{3}$ hour
(e) Can't be determined

Directions (11-15): What approximate value will come in place of question mark (?) in the given questions?
Q11. $(36.01)^3 \times (4096)^{\frac{1}{2}} \times (37.99)^2 \div (9^3 \times 75.98^2) = 4^?$
(a) 7
(b) 3
(c) 5
(d) 8
(e) 7

Q12. $(4809.01 + 9615.96 + 14425.03) \div 4.98 + 6.02 = (?)^2$
(a) 92
(b) 67
(c) 72
(d) 76
(e) 74

Q13. $\frac{4}{15}$ *of* $393 + \frac{7}{12}$ *of* $478 = ? \times (1.99 + 1.01)$
(a) 128
(b) 138
(c) 158
(d) 178

(e) 148

Q14. $\sqrt{2809.001} \div 7.98 \times (12.01)^2 + 46.002 = ?$
(a) 1300
(b) 900
(c) 1000
(d) 1100
(e) 980

Q15. $(35\%\ of\ 74000) \div ? = (123\ \%\ of\ 13.02)^2 \times 2.01$
(a) 40
(b) 50
(c) 75
(d) 90
(e) 65

Solutions

S1. Ans.(e)
Sol. First train speed = 45 km/hr
2^{nd} train speed = 60 km/hr
∴Difference in distance covered in 1 hr = 15 km

S2. Ans.(a)
Sol.
Let speed boat =x km/h
Let speed of stream = y km/h
Condition I
$$2\times\frac{28}{x+y}=\frac{28}{x-y}\Rightarrow\frac{x}{y}=\frac{3}{1}$$
Condition II
$$\frac{28}{(3y+2y)}+\frac{28}{(3y-2y)}=\frac{672}{60}$$
$$\Rightarrow\frac{28}{5y}+\frac{28}{y}=\frac{672}{60}$$
$$\Rightarrow\frac{28+28\times5}{5y}=\frac{672}{60}\Rightarrow y=3\text{ kmph}$$
$\therefore x = 9\ kmph$

S3. Ans.(a)
Sol.
Let speed of faster train = x kmph
Speed of slower train = y kmph
When both move in same direction $=\frac{60}{60\times60}=\frac{0.2}{x-y}$
$= x - y = 12$

When both move in opposite direction $= \frac{10}{60\times60} = \frac{0.2}{x+y}$

$= x + y = 72$

From above equations

$x = 42\ kmph,\ \ y = 30\ kmph$

S4. Ans.(b)

Sol.

The ratio of speeds = The ratio of distances, when time is constant.

Given that 5L=4T

Or, 1L = 4/5 T

In a fixed time, distance travelled by leopard $= 3\times\frac{4}{5}T = \frac{12}{5}T$

And distance travelled by tiger is 5T

∴ The ratio of distances covered by leopard to the tiger = 12 : 25

Again, ratio of rounds made by leopard to the tiger = 12 : 25

Hence, leopard makes 48 rounds, when tiger makes 100 rounds.

S5. Ans.(a)

Sol.

Since the trains are 100 km apart, and the trains are travelling towards each other at 40 and 60 km/hr, the trains will collide in one hour. The bird must be flying at 90 k/hr during this time, so the bird travels 90 km.

S6. Ans.(c)

Sol.

Let length of platform = x meters

Let length of tunnel = y meter

Speed of former train $= \frac{4}{5} \times \left(\frac{5}{18} \times 72\right) = 16$ m/sec

$\therefore \frac{x+16\times12}{36} = 16$

$\Rightarrow x = 16 \times 24 = 384$ meters

And, $\frac{y+16\times12}{24} = 16$

$\Rightarrow y = 12 \times 16 = 192$ meters

∴ Required answer = 384 + 192 = 576 meters

S7. Ans.(d)
Sol.
Let total distance (AE) = d km
$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$
$$= \frac{d}{\frac{d}{4x} + \frac{d}{12x} + \frac{d}{4x}}$$
$$x + 14 = \frac{12x}{7}$$
$$\therefore x = \frac{98}{5}$$
x = 19.6 km/hr
Since, we do not know about total time or times for individual journey. Hence, we cannot determine the required answer.

S8. Ans.(c)
Sol.
Let first train travelled x km before meeting
∴ Second train will travel (x +100) km before meeting in same time as that by first.
$$\frac{x + 100}{60} = \frac{x}{50}$$
⇒ x = 500 km
∴ Required distance = 2 × 500 + 100
= 1100 km

S9. Ans.(e)
Sol.
Speed of boat in downstream = 24 = a + b
Where a = speed of boat in still water and b = Speed of stream
Now a =4b
⇒ 24 = 5b ⇒ b= $\frac{24}{5}$ and $a = 4 \times \frac{24}{5} = \frac{96}{5}$
Let, total distance covered is 'x' km
ATQ,
$$6 = \frac{x}{2\times24} + \frac{x\times5}{2\times72}$$
$$x = \frac{144\times6}{8} = 108\ km$$

S10. Ans.(e)
Sol.
Let the speed of water is x km/hr, then speed of vikas in still water is 2x km/hr
From 1st condition,
$$\frac{D}{2x-x} - \frac{D}{2x+x} = 4$$

$\Rightarrow \frac{D}{x} - \frac{D}{3x} = 4$

$\Rightarrow$ D = $6x$ ...(i)

From 2nd condition, when speed of Vikas is $4x$ km/hr

$\frac{D}{4x-x} - \frac{D}{4x+x} = \frac{20}{100} \times 4$

$\Rightarrow \frac{D}{3x} - \frac{D}{5x} = \frac{4}{5}$

$\Rightarrow$ D = $6x$ ...(ii)

Hence both equations are same so answer can't be determined.

S11. Ans.(c)

Sol.

$36.01^3 \times 4096^{\frac{1}{2}} \times 37.99^2 \div (9^3 \times 75.98^2) = 4^?$

or, $4^? = \dfrac{36^3 \times \sqrt{4096} \times 38^2}{9^3 \times 76^2}$

$= \dfrac{4^3 \times 9^3 \times 4^3 \times 38 \times 38}{9^3 \times 76 \times 76} = \dfrac{4^3 \times 4^3}{2 \times 2}$

or, $4^? \approx 4^3 \times 4^2 = 4^5$

$\therefore ? \approx 5$

S12. Ans.(d)

Sol.

$(4809.01 + 9615.96 + 14425.03) \div 4.98 + 6.02 = (?)^2$

or, $(?)^2 \approx \dfrac{4809 + 9616 + 14425}{5} + 6$

$= \dfrac{28850}{5} + 6 = 5770 + 6$

Or, $(?)^2 \approx 5776$

$\therefore ? \approx \sqrt{5776} = 76$

S13. Ans.(a)

Sol.

$\dfrac{4}{15}$ of $393 + \dfrac{7}{12}$ of $478 = ? \times (1.99 + 1.01)$

or, $? \times 3 \approx \dfrac{4}{15} \times 393 + \dfrac{7}{12} \times 478$

or, $? \times 3 \approx \frac{4}{15} \times 390 + \frac{7}{12} \times 480$
or, $? \times 3 \approx 104 + 280$
or, $? \approx \frac{384}{3}$
$\therefore ? \approx 128$

S14. Ans.(c)
Sol.
$? \approx \sqrt{2809} \div 8 \times (12)^2 + 46$
or, $? \approx \frac{53}{8} \times (12)^2 + 46$
or, $? \approx 954 + 46$
$\therefore ? \approx 1000$

S15. Ans.(b)
Sol.
$(35\% \text{ of } 74000) \div ? = (123\% \text{ of } 13.02)^2 \times 2.01$
or, $\left(\frac{35 \times 74000}{100}\right) \div ? = \left(\frac{123 \times 13}{100}\right)^2 \times 2$
or, $\frac{25900}{?} \approx (15.99)^2 \times 2$
or, $\frac{25900}{?} \approx 16 \times 16 \times 2$
$\therefore ? \approx \frac{25900}{16 \times 16 \times 2} = 50.58 \approx 50$