

EXERCISE 14A

For SSC GD & MTS Exams

- Shekhar walked a distance at a speed of 8 km/h. He was in a hurry, so on the return journey he traveled in an autorickshaw at a speed of 24 km/h. Find his average speed for the entire journey.
SSC MTS 02/11/2021 (Shift-1)
(a) 20 km/h (b) 32 km/h
(c) 12 km/h (d) 16 km/h
- A truck driver has to cover a total distance of 260 km in 4 hours. He drives at a speed of 56 km/h for the first 75 minutes, and the next 90 km at a speed of 60 km/h. At what speed (in km/h) must he drive the remaining distance in order to complete the journey in 4 hours?
SSC MTS 02/11/2021 (Shift-1)
(a) 65 (b) 58
(c) 80 (d) 75
- A train takes 1 hour and 12 minutes to cover a certain distance at a speed of 90 km/h. If speed is increased by 40%, then how long will it take to cover $\frac{7}{3}$ of the distance?
SSC MTS 27/10/2021 (Shift-3)
(a) 4 (b) 2
(c) 3 (d) 5
- A man walked at a speed of 6 km/h from point A to B, and came back from point B to A at a speed of 10 km/h. Find the ratio of the time taken by the man in walking from A to B to that from B to A.
SSC MTS 27/10/2021 (Shift-3)
(a) 4:3 (b) 5:4
(c) 5:3 (d) 5:2
- A train travels for $5\frac{1}{2}$ hours, the first half of the distance at 60 km/h and the other half at 20 m/sec. The total distance (in km) travelled is:
SSC MTS 27/10/2021 (Shift-2)
(a) 300 (b) 240
(c) 360 (d) 250
- If a car covers a certain distance in 1 hour and 24 minutes by covering two-third of the distance at 52 km/h and the rest at 65 km/h, then find the total distance.
SSC MTS 27/10/2021 (Shift-1)
(a) 78 (b) 163.5
(c) 75.8 (d) 46.8
- A train, 700 m long, is running at a speed of 60 km/h. If it takes 72 seconds to cross a bridge, then find the length of the bridge.
SSC MTS 27/10/2021 (Shift-1)
(a) 1700 (b) 1200
(c) 600 (d) 500
- A car covers a distance of 300 km with uniform speed. The time taken for the journey is one-third of the speed in km/h. The time taken to cover the distance of 300 km is:
SSC MTS 26/10/2021 (Shift-3)
(a) 10 (b) 8
(c) 9 (d) 12
- The average speed of a train is 160% of the average speed of a car. The car covers a distance of 880 km in 16 hours. The time taken by the train to cover distance of 484 km is:
SSC MTS 26/10/2021 (Shift-3)
(a) $7\frac{1}{2}$ (b) $4\frac{1}{2}$
(c) $5\frac{1}{2}$ (d) 5
- A person travelled a distance of 150 km and then returned to the starting point. The time taken for the outward journey was $2\frac{1}{2}$ hours more than that for the return journey. His speed for the return journey was 10 km/h more than that for the outward journey. His speed for the return journey, in km/h, was:
SSC MTS 26/10/2021 (Shift-2)
(a) 30 (b) 35
(c) 25 (d) 20
- A bus covers a certain distance in 1 hour 30 minutes at a speed of $11\frac{1}{9}$ m/sec. A car covers the same distance in 36 minutes. What is the ratio of the speeds of the bus and car?
SSC MTS 26/10/2021 (Shift-2)
(a) 2 : 3 (b) 2 : 5
(c) 1 : 2 (d) 3 : 7
- The ratio of the speeds of two trains is 5 : 8. If the second train runs 400 km in 4 hours, then the speed of the first train (in km/h) is:
SSC MTS 26/10/2021 (Shift-1)
(a) 37 (b) 62.5
(c) 12.5 (d) 25

13. A car travels a distance of x km at a speed of $5\frac{5}{9}$ m/sec and returns at 5 m/sec to the starting point. If the total time taken by the car is $7\frac{3}{5}$ hours then the value of x (in km) is: **SSC MTS 26/10/2021 (Shift-1)**
- (a) 78 (b) 72
(c) 80 (d) 66
14. A person crosses an 1800 metre long street in 6 minutes. The speed of the person in km/h is: **SSC MTS 22/10/2021 (Shift-3)**
- (a) 9 (b) 15
(c) 18 (d) 12
15. A man covers $\frac{3}{7}$ of a total journey by train, $\frac{5}{14}$ of the total journey by bus, and the remaining 3 km on foot. His total journey is: **SSC MTS 22/10/2021 (Shift-2)**
- (a) 18 km (b) 12 km
(c) 15 km (d) 14 km
16. Suresh and Dinesh travel a distance of 120 km such that the speed of Suresh is more than that of Dinesh. The sum of their speeds is 75 km/h, and the total time taken by both is 6 hours and 40 minutes. The speed of Suresh is: **SSC MTS 22/10/2021 (Shift-2)**
- (a) 45 (b) 42
(c) 40 (d) 30
17. An airplane took off from the starting point 45 minutes later than the scheduled time. The destination was 2100 km away from the starting point. To reach on time, the pilot had to increase the speed by 40% of its usual speed. What was the increased speed (in km/h)? **SSC MTS 22/10/2021 (Shift-1)**
- (a) 1870 (b) 2520
(c) 2940 (d) 1120
18. A and B travel the same distance at speeds of 8 km/h and 12 km/h, respectively. If B takes 30 minutes less than that taken by A, what is the distance (in km) travelled by each one of them? **SSC MTS 22/10/2021 (Shift-1)**
- (a) 12 (b) 10
(c) 15 (d) 8
19. An earthworm of length 18 cm is crawling along a certain path with a speed of 4 cm/s. An insect overtakes the earthworm in 6 s. How fast (in cm/s) is the insect walking? Assume that they both are walking along parallel paths. **SSC MTS 20/10/2021 (Shift-3)**
- (a) 7.0 (b) 6.5
(c) 5.5 (d) 6.0
20. One-third of a journey is covered at a rate of 40 km/h, one-fourth at the rate of 35 km/h and the rest at the rate of 45 km/h. The average speed for the whole journey (in km/h) is: **SSC MTS 20/10/2021 (Shift-3)**
- (a) $\frac{5670}{187}$ (b) $\frac{6750}{187}$
(c) $\frac{6570}{187}$ (d) $\frac{7560}{187}$
21. Two trains A and B start with uniform speeds at the same time from points P and Q, respectively, toward each other. After crossing each other, A takes 16 hours to reach Q and B takes 4 hours to reach P. If train A is moving with a speed of 54 km/h, the speed of B (in km/h) is: **SSC MTS 20/10/2021 (Shift-3)**
- (a) 112 (b) 27
(c) 36 (d) 108
22. An aeroplane covers a certain distance at a speed of 190 km/h in 7 hours. To cover the same distance in $4\frac{3}{4}$ hours, it must travel at a speed (in km/h) of: **SSC MTS 20/10/2021 (Shift-2)**
- (a) 275 (b) 280
(c) 300 (d) 240
23. Two trains of the same length are running on parallel tracks in the same direction at 44 km/h and 32 km/h. The faster train passes the other train in 72 seconds. What is the length (in m) of each train? **SSC MTS 20/10/2021 (Shift-2)**
- (a) 135 (b) 120
(c) 100 (d) 75
24. A car covers a certain distance moving at a constant speed of 50 km/h in 3 hours. How much more time would it have taken to cover the same distance if the speed had been only 40 km/h? **SSC MTS 20/10/2021 (Shift-1)**
- (a) 30 (b) 45
(c) 10 (d) 60
25. Amar drives his car for 2 hours at a speed of 70 km/h, for 3 hours at a speed of 80 km/h and for 1 hour at a speed of 40 km/h and reaches his hometown. What is his average speed (in km/h)? **SSC MTS 20/10/2021 (Shift-1)**
- (a) 64 (b) 70
(c) 60 (d) 66
26. In a 200 m walk race, Zakia walks at an average speed of 5 km/h. She gives a start of 20 m to Veena and still beats her by 18 seconds. What is the average speed of Veena (in km/h)? **SSC MTS 20/10/2021 (Shift-1)**
- (a) 4.2 (b) 4.5
(c) 4 (d) 3.5

27. A man takes 12 minutes to cover a certain distance at a speed of 8 km/h. If he walks at a speed of 12 km/h, how long will he take to cover the same distance?
SSC MTS 18/10/2021 (Shift-1)
- (a) 12 (b) 14
(c) 8 (d) 10
28. While covering a distance of 51 km, a man noticed that after walking for one hour and 40 minutes, the distance covered by him was $\frac{5}{12}$ of the remaining distance. What was his speed?
SSC MTS 18/10/2021 (Shift-1)
- (a) 7 (b) 10
(c) 8 (d) 9
29. A man travelled from A to B at a speed of 10 m/sec, and returned to A from B at a speed of x km/h. If his average speed is 45 km/h, then what is the value of x ?
SSC MTS 14/10/2021 (Shift-3)
- (a) 54 (b) 50
(c) 56 (d) 60
30. A 338 m long train is travelling at 60 km/h. It crosses a man, travelling in the same direction, in 39 seconds. What is the speed (in m/sec) of the man?
SSC MTS 14/10/2021 (Shift-2)
- (a) 9 (b) 10
(c) 8 (d) 7
31. A bus covers a distance of 1.8 km in 3 minutes. How much faster (in m/s) is it than a young athlete who runs 200 m in 25 seconds? SSC MTS 7/08/2019 (Shift-3)
- (a) 1.5 (b) 1
(c) 2 (d) 2.5
32. A train moves at the speed of 80 km/h and crosses a platform in 0.75 minutes. If the length of the train is equal to the length of the platform, then what is the length of the platform?
SSC MTS 7/08/2019 (Shift-2)
- (a) 400 m (b) 480 m
(c) 450 m (d) 500 m
33. A takes 10 minutes more than B in covering a certain distance. If their speeds are in the ratio of 3 : 4, then what is the time taken by B to cover the same distance?
SSC MTS 7/08/2019 (Shift-2)
- (a) 40 minutes (b) 30 minutes
(c) 50 minutes (d) 20 minutes
34. A bus covers first 200 km of a journey in 4 hours and the next 600 km in 6 hours. What is the average speed of the bus for the whole journey?
SSC MTS 7/08/2019 (Shift-1)
- (a) 100 km/h (b) 90 km/h
(c) 60 km/h (d) 80 km/h
35. A train, 700 m long crosses a pole in 35 seconds. How much time does it take to cross a platform of length 740 m? SSC MTS 06/08/2019 (Shift-3)
- (a) 1 min 24 sec (b) 1 min 30 sec
(c) 1 min 12 sec (d) 1 min 20 sec
36. The speed of a car is 36 km/h. How much time (in minutes) will a bus travelling at one-fifth of the speed of the car take to cover a distance of 900 m?
SSC MTS 7/08/2019 (Shift-3)
- (a) $5\frac{1}{2}$ (b) $7\frac{1}{2}$
(c) $10\frac{1}{2}$ (d) $8\frac{1}{2}$
37. A person travels from A to B with a speed of 30 km/h. He returns from B to A with a speed of 20 km/h. What is his average speed in the entire journey?
SSC MTS 6/08/2019 (Shift-2)
- (a) 26.5 km/h (b) 24 km/h
(c) 25 km/h (d) 27.5 km/h
38. A train crosses a stationary pole in 3 minutes, it crosses the 600 meter long platform in 5 minutes. The Length and speed of train is SSC MTS 6/08/2019 (Shift-2)
- (a) 3600 m, 18 km/h (b) 900 m, 18 km/h
(c) 900 m, 15 km/h (d) 1200 m, 15 km/h
39. A car can cover a distance of 18 km in 24 minutes. The speed of a bus is twice that of a car. In how many minutes can the bus cover a distance of 135 km?
SSC MTS 6/08/2019 (Shift-1)
- (a) 48 Minutes (b) 90 Minutes
(c) 50 Minutes (d) 75 Minutes
40. The average speed of a car is 600 m/min. How much slower does the car run (in metres/second) than a runner who travels 100 metres in 9.6 seconds?
SSC MTS 5/08/2019 (Shift-3)
- (a) $\frac{5}{24}$ (b) $\frac{1}{2}$
(c) $\frac{7}{12}$ (d) $\frac{5}{12}$

SOLUTIONS 14

1. (c) $\frac{2 \times 8 \times 24}{8 + 24} = 12 \text{ km/h}$

2. (c) $D = 56 \times \frac{75}{60} = 70 \text{ km,}$

$$T = \frac{90}{60} = \frac{3}{2} \text{ h}$$

$$\begin{aligned} \text{Total distance covered} &= 70 + 90 \\ &= 160 \text{ km} \end{aligned}$$

$$\text{Total time taken} = \frac{3}{2} + \frac{75}{60} = \frac{11}{4} \text{ h}$$

$$\text{Remaining distance} = 100 \text{ km}$$

$$\text{Time} = 4 - \frac{11}{4} = \frac{5}{4} \text{ h}$$

$$\text{Speed} = \frac{100}{\frac{5}{4}} \times 4 = 80 \text{ km/h}$$

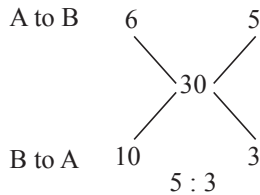
3. (b) $40\% = \frac{2}{5} \Rightarrow \frac{7}{5}$

$$\text{Time} = 1 \text{ h } 12 \text{ min} = \frac{6}{5} \text{ hour}$$

$$\text{Speed} \Rightarrow 5 \quad 7$$

$$\text{Time} = \frac{5}{7} \times \frac{6}{5} \times \frac{7}{3} = 2 \text{ hours}$$

4. (c) A to B



5. (c) $720 \text{ m/s} = 20 \times \frac{18}{5} = 72 \text{ km/h}$

$$\begin{array}{r} 72 \quad 60 \\ + \quad \quad \\ \hline 132 \end{array}$$

$$D = \frac{72 \times 60}{132} \times \frac{11}{2} \times 2$$

$$D = 360 \text{ km}$$

6. (a) $1 \text{ h } 24 \text{ min} = \frac{7}{5} \text{ hours}$

$$\begin{aligned} D &= \frac{65 \times 52}{(65 \times 2 + 52 \times 1)} \times \frac{3}{1} \times \frac{7}{5} \\ &= \frac{13 \times 52 \times 21}{182} = 78 \text{ km} \end{aligned}$$

7. (d) To D = $72 \times 60 \times \frac{5}{18} = 1200 \text{ m}$

$$\text{(bridge) } D = 1200 - 700 = 500 \text{ m}$$

8. (a) $\frac{1}{3} \rightarrow \text{Time}$ $D = 300 \text{ km}$
 $\frac{1}{3} \rightarrow \text{Speed}$

$$\begin{aligned} 3 \times 1 &= 300 \\ 1 &= \sqrt{100} \\ 1 &= 10 \end{aligned}$$

$$T = 10 \text{ hours}$$

9. (c) $160\% = \frac{8}{5} \rightarrow \text{Train}$
 $\rightarrow \text{Car}$

$$\text{Car's speed} = \frac{880}{16} = 55 \text{ km/h}$$

$$5 = 55 \text{ km/h}$$

$$1 = 11$$

$$\text{Train} = 8 \times 11 = 88 \text{ km/h}$$

$$T = \frac{484}{88} = 5\frac{1}{2} \text{ hours}$$

10. (a) $D = 150 \text{ km}$, $T = 2\frac{1}{2} \text{ h} = \frac{5}{2} \text{ h}$, $\text{speed} = 10 \text{ km/h}$

$$150 \times \frac{5}{2} \times 10 = \begin{array}{c} 600 \\ \swarrow \quad \searrow \\ 30 \quad 20 \\ \hline 10 \end{array}$$

$$\text{Return speed} = 30 \text{ km/h}$$

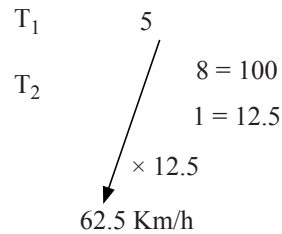
11. (b) Bus $11\frac{1}{9} \text{ m/s} = 40 \text{ km/h}$

$$\text{Car's speed} = \frac{40}{36} \times \frac{3}{2} \times 60 = 100 \text{ km/h}$$

$$\begin{aligned} \text{Bus : Car} &= 40 : 100 \\ &= 2 : 5 \end{aligned}$$

$$\text{Speed} = \frac{400}{4} = 100 \text{ km/h}$$

12. (b) T_1



13. (b) $5\frac{5}{9} \text{ m/sec} = 20 \text{ km/h}$, $5 \text{ m/s} = 18 \text{ km/h}$

$$\text{Time} = \frac{x}{20} + \frac{x}{18} = \frac{38}{5}$$

$$19x = 38 \times 36$$

$$x = 72 \text{ km}$$

14. (c) $\text{Speed} = \frac{1800}{6 \times 60} \times \frac{18}{5} = 18 \text{ km/h}$

15. (d) $\text{Train} = \frac{3}{7} = \frac{6}{14}$

$$\text{Bus} = \frac{5}{14}$$

$$\text{Foot} = 14 - (6 + 5) = 3 = 3 \text{ km}$$

$$1 = 1 \text{ km}$$

$$\text{Total} = 14 \times 1 = 14 \text{ km}$$

16. (a) By option

$$S + D = 75 \text{ km/h}, S > 0$$

$$\begin{array}{c} \swarrow \quad \searrow \\ 45 \quad 30 \end{array}$$

$$\text{Time} \Rightarrow \frac{D}{S} \Rightarrow \frac{120}{45} + \frac{120}{30}$$

$$= \frac{20}{3} \text{ h} = 6\frac{2}{3} \text{ h}$$

$$\text{Time} = 6 \text{ h } 40 \text{ min}$$

So option a is correct

17. (d) Speed $\Rightarrow 100 \quad 140$ \swarrow $45 \text{ min} = \frac{3}{4} \text{ h}$

$$\begin{array}{r} D \Rightarrow 2100 \quad 2100 \\ T \Rightarrow 21 \quad 15 \end{array} \times 8$$

$$\underbrace{\quad \quad \quad}_{6 = \frac{3}{4} \text{ h}} \quad \quad \quad \searrow \quad 1120 \text{ km/h}$$

18. (a) A $\begin{array}{c} \text{Speed} \\ 8 \quad 3 \end{array}$ $\swarrow \quad \searrow$ $1 = 8$

$$\begin{array}{c} \swarrow \quad \searrow \\ 24 \quad - \\ \swarrow \quad \searrow \\ B \quad 12 \quad 2 \end{array} \quad \left. \begin{array}{c} \\ \\ \\ \end{array} \right] 1$$

$$30 \text{ min} = \frac{1}{2} \text{ h}$$

$$1 = \frac{1}{2} \text{ h}$$

$$D = 24 \times \frac{1}{2} = 12 \text{ km}$$

19. (a) Distance = $18 \text{ cm} + 4 \times 6 \text{ cm} = 42 \text{ cm}$

$$\text{Time} = 6 \text{ sec}$$

$$\text{Speed of insect} = \frac{42}{6} = 7 \text{ cm/sec}$$

20. (d) Speed $\quad \quad \quad T$

$$\begin{array}{c} 40 \\ 35 \\ 45 \end{array} \rightarrow \begin{array}{c} \text{T.O.} \\ 2520 \end{array} \leftarrow \begin{array}{c} 63 \times \frac{1}{3} = 21 \\ 72 \times \frac{1}{4} = 18 \\ 56 \times \frac{5}{12} = \frac{70}{3} \end{array}$$

$$\text{Average speed} = \frac{2520}{21 + 18 + \frac{70}{3}}$$

$$= \frac{7560}{187} \text{ km/h}$$

21. (d) $A = 54 \text{ km/h}, T_A = 16 \text{ h}, T_B = 4 \text{ h}$

$$\frac{A}{B} = \sqrt{\frac{T_B}{T_A}}$$

$$\frac{54}{B} = \sqrt{\frac{4}{16}}$$

$$\Rightarrow B = 108 \text{ km/h}$$

22. (b) Speed = $\frac{190 \times 7}{19} = 280 \text{ km/h}$

23. (c) Speed $\quad \quad \quad T = 72 \text{ sec}$

$$\begin{array}{r} 44 \text{ km/h} \quad 32 \text{ km/h} \\ \hline 10 \text{ km/h} \end{array}$$

$$= \frac{10 \times 5}{18} = \frac{25}{9} \text{ m/s}$$

$$T = 72 \text{ sec}$$

$$D = \frac{25}{9} \times 72 = 200 \text{ m}$$

$$\text{Length of each train} = \frac{200}{2} = 100 \text{ m}$$

24. (b) Time = $\frac{50 \times 3}{40} = \frac{15}{4} \text{ h} = 3\frac{3}{4} \text{ h} = 3 \text{ h } 45 \text{ min}$

$$\begin{aligned} \text{More time taken} &= 3 \text{ h } 45 \text{ min} - 3 \text{ h} \\ &= 45 \text{ min} \end{aligned}$$

25. (b) $70 \times 2 = 140 \text{ km}$

$$80 \times 3 = 240$$

$$40 \times 1 = 40 \text{ km}$$

$$\hline \text{Total} \quad 420 \text{ km}$$

$$\text{Total Time} = 2 + 3 + 1$$

$$= 6 \text{ h}$$

$$\text{Average speed} = \frac{420}{6} = 70 \text{ km/h}$$

26. (c) Zakia's time = $\frac{200}{5 \times \frac{5}{18}} = 144 \text{ sec}$

$$\text{Veena's time} = 144 + 18 = 162 \text{ sec}$$

$$\text{Veena's D} = 200 - 20 = 180 \text{ m}$$

$$\text{Veena's S} = \frac{180}{162} \times \frac{18}{5} = 4 \text{ km/h}$$

27. (c) $12 \text{ min} = \frac{1}{5} \text{ h}$

$$\text{Time} = \frac{8 \times \frac{1}{5}}{12} = \frac{8}{60} \text{ h} = 8 \text{ min}$$

28. (d) $\begin{array}{l} \frac{5}{12} \rightarrow \text{Covered} \\ \frac{5}{12} \rightarrow \text{Remaining} \end{array} \left[\begin{array}{c} + \\ \hline \end{array} \right] \text{Total}$

$$17$$

$$1 \text{ h } 40 \text{ min} = \frac{5}{3} \text{ hours}$$

$$\text{Speed} = \frac{51 \times \frac{5}{17}}{\frac{5}{3}} = 9 \text{ km/h}$$

$$29. \text{ (d) } 10 \text{ m/s} = 10 \times \frac{18}{5} = 36 \text{ km/h}$$

$$\text{Average speed} = 45 \text{ km/h}$$

$$S = \frac{45 \times 36}{2 \times 36 - 45} = 60 \text{ km/h}$$

$$30. \text{ (c) } 60 \text{ km/h} = \frac{50}{3} \text{ m/s}$$

$$T = 39 \text{ sec}$$

$$D \text{ by train} = \frac{50}{3} \times 39 = 650 \text{ m}$$

$$S \text{ of man} = \frac{650 - 338}{39} = 8 \text{ m/sec}$$

$$31. \text{ (c) } \text{Speed of bus} = \frac{1.8 \text{ km}}{3 \text{ min}} = \frac{1.8 \times 100}{3 \times 60} = 10 \text{ m/s}$$

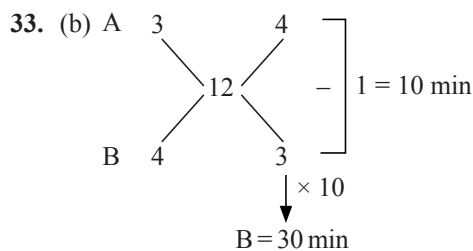
$$\text{Speed of athlete} = \frac{200}{25} = 8 \text{ m/s}$$

$$32. \text{ (d) } 80 \text{ km/h} = 80 \times \frac{5}{18} = \frac{200}{9} \text{ m/s}$$

$$0.75 \text{ min} = 45 \text{ sec}$$

$$D = \frac{200}{9} \times 45 = 1000 \text{ m}$$

$$\text{Length of platform} = \frac{1000}{2} = 500 \text{ m}$$



$$34. \text{ (d) } \text{Average speed} = \frac{200 + 600}{4 + 6} = \frac{800}{10} = 80 \text{ km/h}$$

$$35. \text{ (c) } S = \frac{700}{35} = 20 \text{ m/s}$$

$$\begin{aligned} \text{Time} &= \frac{740 + 700}{20} = \frac{1440}{20} \\ &= 72 \text{ sec} \end{aligned}$$

$$T = 1 \text{ min } 12 \text{ sec}$$

$$\begin{aligned} 36. \text{ (b) } \text{Time} &= \frac{900}{10 \times \frac{1}{5}}, \text{ Speed} = 36 \text{ km/h} \\ &= 36 \times \frac{5}{18} = 10 \text{ m/s} \\ &= 450 \text{ sec} \\ &= 7 \frac{1}{2} \text{ min} \end{aligned}$$

$$37. \text{ (b) } \text{Average speed} = \frac{2 \times 30 \times 20}{20 + 30} = 24 \text{ km/h}$$

$$38. \text{ (b) } \quad \begin{array}{cc} T(\text{min}) & D(\text{m}) \end{array}$$

$$2 \left[\begin{array}{cc} 3 & 0 \\ - & - \end{array} \right] 600$$

$$2 = 600$$

$$\text{Speed} = \frac{600}{2 \times 60} = 5 \text{ m/s} = 18 \text{ km/h}$$

$$\text{Length} = 5 \times 3 \times 60 = 900 \text{ m}$$

$$39. \text{ (b) } \text{Car's speed} = \frac{18}{24} \times 60 = 45 \text{ km/h}$$

$$\text{Bus' speed} = \downarrow \times 2 \quad 90 \text{ km/h}$$

$$\text{Bus's time} = \frac{135}{90} = \frac{3}{2} \text{ h} = 90 \text{ min}$$

$$40. \text{ (d) } \text{Car} \Rightarrow \frac{600}{60} = 10 \text{ m/s}$$

$$\text{Runner} \Rightarrow \frac{100}{9.6} = \frac{125}{12} \text{ m/s}$$

$$\frac{125}{12} - 10 = \frac{5}{12} \text{ m/s}$$

EXERCISE 14B

For SSC CHSL Exams

- 'A' and 'B' are two stations 494 km apart. A train starts from station 'A' at 3 p.m. and travels towards station 'B' at 83 km/h. Another train starts from station 'B' at 4 p.m. and travels towards station 'A' at 54 km/h. At what time do they meet?

SSC CHSL 10/06/2022 (Shift-2)

- (a) 7 p.m. (b) 7 a.m.
(c) 8 p.m. (d) 9 a.m.

- For the first part of her journey, Sunita travelled at a speed of 450 m/min and, for the rest of the journey, at a speed 1.4 times of her initial speed. If Sunita travelled a total distance of 33.3 km in 1 hour, what was the distance that Sunita travelled at a lower speed?

SSC CHSL 10/06/2022 (Shift-1)

- (a) 11.50 (b) 11.15
(c) 11.25 (d) 11.20
3. Anjali and Babita are running on a circular track in opposite directions from same time at same point with speeds of 8 m/sec and 6 m/sec, respectively. If the length of the circular track is 960 m, how many times they will meet? **SSC CHSL 09/06/2022 (Shift-3)**
(a) 7 (b) 6
(c) 12 (d) 14
4. The average speed of a car is $1\frac{3}{5}$ times the average speed of a bus. A tractor covers 1150 km in 23 hours. How much distance will the car cover in 4 hours if the speed of the bus is twice the speed of the tractor? **SSC CHSL 09/06/2022 (Shift-3)**
(a) 540 (b) 740
(c) 440 (d) 640
5. Gopal travels from A to B at the speed of 5 km/h, from B to C at 10 km/h, and from C to D at 15 km/h. If $AB = BC = CD$, then find Gopal's average speed. **SSC CHSL 09/06/2022 (Shift-2)**
(a) $8\frac{2}{11}$ (b) $70\frac{2}{11}$
(c) $60\frac{2}{11}$ (d) $9\frac{2}{11}$
6. Riya runs $\frac{3}{2}$ times as fast as Prerna. In a race, if Riya gives a lead of 100 m to Prerna, find the distance Riya has to run before both of them meet. **SSC CHSL 09/06/2022 (Shift-2)**
(a) 315 m (b) 300 m
(c) 265 m (d) 240 m
7. In a 1200 m race, the ratio of the speeds of two contestants Meenal and Nitu is 5 : 7. If Meenal has a start of 500 m, then Meenal wins by: **SSC CHSL 09/06/2022 (Shift-1)**
(a) 220 m (b) 240 m
(c) 250 m (d) 225 m
8. In a trip, Ram covers a distance of 200 km in 10 hours. First he started his journey by bike at a speed of 15 km/h, after that his bike got damaged and the rest of the journey he completed by his friend's car at a speed of 25 km/h. Ratio of distances covered by bike and car is. **SSC CHSL 09/06/2022 (Shift-1)**
(a) 3 : 5 (b) 2 : 3
(c) 1 : 1 (d) 5 : 3
9. Three cities, A, B and C are located such that they form the vertices of an equilateral triangle if joined by straight lines. Rashid travels from A to B at the speed of 40 km/h, from B to C at the speed of 60 km/h and from C to A at the speed of 72 km/h. Find the average speed of Rashid for the entire journey. **SSC CHSL 08/06/2022 (Shift-3)**
(a) 54 (b) $56\frac{2}{3}$
(c) 55 (d) $57\frac{1}{3}$
10. A ship sails out to a mark at the speed of 15 km/h and sails back to the starting point at the speed of 10 km/h. The average speed of sailing of the ship is: **SSC CHSL 08/06/2022 (Shift-3)**
(a) 12 (b) 15
(c) 13 (d) 14
11. Two trains having lengths of 230 m and 240 m are 130 m apart. They start moving towards each other on parallel tracks, at speeds of 160 km/h and 200 km/h, respectively. In how much time will the trains cross each other? **SSC CHSL 08/06/2022 (Shift-2)**
(a) 5 sec (b) 6 sec
(c) 8 sec (d) 7 sec
12. The distance between stations A and B is 778 kilometres. A train travels from station A to station B at a uniform speed of 84 km/h and then returns to station A at a uniform speed of 56 km/h. What is the train's average speed (in km/h) throughout the journey? **SSC CHSL 08/06/2022 (Shift-1)**
(a) 63.4 (b) 66
(c) 67.2 (d) 65
13. A car travelled distances of 10 km, 20 km and 30 km at speeds of 30 km/h, 40 km/h and 60 km/h, respectively. The average speed of the car is: **SSC CHSL 08/06/2022 (Shift-1)**
(a) 45 (b) 20
(c) 30 (d) 40
14. An athlete crosses a distance of 3600 m in 12 minutes. What is his speed (in km/h)? **SSC CHSL 07/06/2022 (Shift-2)**
(a) 15 (b) 17
(c) 18 (d) 16
15. Rani covers a distance of 475 m in a minute. How much distance would Rani have covered in an hour if she travelled at 1.2 times of her current speed? **SSC CHSL 07/06/2022 (Shift-1)**
(a) 34.4 (b) 34.3
(c) 34.2 (d) 34.1
16. A bus covers a certain distance travelling at a speed of 40 km/h and returns to the starting point at a speed of

- 60 km/h. The average speed (in km/h) for the entire journey is: **SSC CHSL 06/06/2022 (Shift-3)**
- (a) 48 (b) 20
(c) 100 (d) 50
17. A 640 metre long train travelling at 80 km/h overtook a 540 metro long train travelling at 72 km/h in the same direction. How long did it take the faster train to cross the other train completely?
SSC CHSL 06/06/2022 (Shift-3)
- (a) 8 minutes 41 seconds
(b) 9 minutes 09 seconds
(c) 9 minutes 01 second
(d) 8 minutes 51 seconds
18. A train takes 3 hours to travel from place A to B at the speed of 60 km/h. The same train takes 2 hours to travel from B to C at 50% increased speed. What is the average speed of the train from place A to C?
SSC CHSL 06/06/2022 (Shift-2)
- (a) 60 (b) 90
(c) 80 (d) 72
19. A girl travels 30 km at a speed of 15 km/h. She travels another 20 km at a speed of 10 km/h. What is her average speed for the entire journey?
SSC CHSL 06/06/2022 (Shift-1)
- (a) 15 (b) 12.5
(c) 13 (d) 11.5
20. A person runs at an average speed of 20 km/h for 30 minutes and cycles at a speed of 32 km/h for 1 hour 15 minutes. Calculate the average speed (in km/h, rounded off to 1 decimal place).
SSC CHSL 03/06/2022 (Shift-3)
- (a) 30.5 (b) 28.6
(c) 25.4 (d) 26.3
21. The ratio of the distances of Ravina and Suhel had to travel from their respective houses to their workplaces was 4 : 7. If Suhel had to travel 63 km, how much did Ravina have to travel?
SSC CHSL 06/06/2022 (Shift-1)
- (a) 40 km (b) 32 km
(c) 39 km (d) 36 km
22. While travelling from Nashik to Daman, Harsh drove for 1 hour at a speed of 50 km/h and for the next three hours at 60 km/h. What was his average speed for the whole trip?
SSC CHSL 02/06/2022 (Shift-3)
- (a) 56 (b) 57.5
(c) 55 (d) 58.5
23. A man runs 200 meters in 24 seconds. His speed is:
SSC CHSL 02/06/2022 (Shift-3)
- (a) 30 (b) 32
(c) 24 (d) 33
24. What distance will be covered by a bus moving at 108 km/h in 40 seconds?
SSC CHSL 02/06/2022 (Shift-2)
- (a) 1 km 600 m (b) 1 km 400 m
(c) 1 km 800 m (d) 1 km 200 m
25. Ruksana travelled at 60 km/h while going from point A to point B, and returned via the same route at a different speed. If Ruksana's overall average speed during the two-way journey was 40 km/h, what was her speed while travelling from B to A?
SSC CHSL 02/06/2022 (Shift-2)
- (a) 42 (b) 40
(c) 45 (d) 36
26. In a circular race of 2500 m, a man and a woman start from a point toward opposite directions with speeds of 37 km/h and 35 km/h, respectively. After how much time from the start of the race will they meet for the first time?
SSC CHSL 02/06/2022 (Shift-1)
- (a) 2 min 40 sec (b) 2 min 30 sec
(c) 2 min 5 sec (d) 2 min 20 sec
27. Given that the lengths of the paths of a ball thrown with different speeds by two boys are the same, and the average speed for the first and second throws are respectively 90 km/h and 162 km/h, then what is the time taken by the first throw to cover the length if the same for the second thrown is one second?
SSC CHSL 10/07/2019 (Shift-3)
- (a) $\frac{3}{2}$ sec (b) 1 sec
(c) $\frac{9}{5}$ sec (d) $\frac{2}{3}$ sec
28. A boy standing by the side of a railway track that an Up train crosses him in 8 seconds and a Down train of twice the length of that of the Up train crosses him in 20 seconds. How long (in seconds) will the two trains take to cross each other?
SSC CHSL 10/07/2019 (Shift-1)
- (a) $13\frac{1}{3}$ (b) 15
(c) 20 (d) $12\frac{1}{3}$
29. If I travel by bus, I reach my office 15 min late, and if I travel by car, I reach 10 min early. If the distance between my home and my office is 25 km, then the difference of the reciprocals of average speeds of the bus and the car, in second per metre, is:
SSC CHSL 09/07/2019 (Shift-3)

- (a) $\frac{3}{25}$ (b) $\frac{3}{50}$
- (c) $\frac{3}{20}$ (d) $\frac{3}{10}$
30. The ratio between the speeds of two trains is 2 : 5. If the first train runs 250 km in 5h, then the sum of the speeds (in km/h) of both the trains is:
SSC CHSL 09/07/2019 (Shift-2)
- (a) 175 (b) 150
 (c) 180 (d) 165
31. The ratio between the speeds of two trains is 2 : 5. If the first train runs 250 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:
SSC CHSL 09/07/2019 (Shift-1)
- (a) 75 (b) 180
 (c) 65 (d) 150
32. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:
SSC CHSL 08/07/2019 (Shift-3)
- (a) 165 (b) 180
 (c) 350 (d) 105
33. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 hours, then the sum of the speed (in km/h) of both the trains is:
SSC CHSL 08/07/2019 (Shift-2)
- (a) 180 (b) 265
 (c) 245 (d) 350
34. A car covers 25 km at a uniform speed. If the speed had been 8 km/h more, it would have taken 10 hours less for the same journey. What is the speed of the car (in km/h)?
SSC CHSL 05/07/2019 (Shift-1)
- (a) 2.5 (b) 4
 (c) 3 (d) 2
35. A train covers 60 km at a uniform speed. If the speed had been 8 km/h more, it would have taken 10 hours less for the same journey. What is the speed of the train (in km/h)?
SSC CHSL 04/07/2019 (Shift-3)
- (a) 4 (b) 2.5
 (c) 3 (d) 5
36. A train covers 360 km at a uniform speed. If the speed had been 10 km/h more, it would have taken 3 hours less for the same journey. What is the speed of the train (in km/h)?
SSC CHSL 04/07/2019 (Shift-2)
- (a) 40 (b) 25
 (c) 30 (d) 50

37. A train covers a certain distance in 45 minutes. If its speed is reduced by 5 km/h, it takes 3 minutes more to cover the same distance. The distance (in km) is:

SSC CHSL 04/07/2019 (Shift-1)

- (a) 64 (b) 60
 (c) 54 (d) 80

38. The ratio of speeds of A and B is 3 : 5. If A takes 24 minutes more than B to cover a certain distance, then how much time (in minutes) will B take to cover the same distance?
SSC CHSL 03/07/2019 (Shift-3)

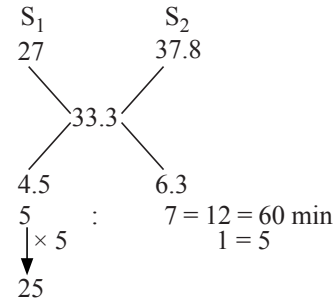
- (a) 40 (b) 36
 (c) 20 (d) 18

SOLUTIONS

1. (a) A $\Rightarrow 83 \times 1 = 83$ km
 Remaining = $494 - 83 = 411$ km
 Speed = $83 + 54 = 137$ km/h
 Time taken = $\frac{411}{137} = 3$ h
 Time = 4 P.M. + 3 h = 7 P.M.

2. (c) $S_1 = \frac{450}{60} \times \frac{18}{5} = 27$ km/h

$S_2 = 27 \times 1.4 = 37.8$ km/h



$D = 27 \times \frac{25}{60} = 11.25$ km

3. (a)

Speed	Time	
8	$3 \times 40 = 120\text{sec}$	} LCM 480
6	$4 \times 40 = 160\text{sec}$	
- $24 = 960\text{m}$
 $1 = 40$

$8 + 6 = 14 \Rightarrow \frac{480}{960} \times 14 = 7$

4. (d)

Car	bus	Tractor
$S \Rightarrow 8$	$5 \rightarrow 5$	
	$2 \leftarrow 2$	1
<hr style="width: 100%; border: 0.5px solid black;"/>		
	16	10 5

160 km/h

Distance covered in 4 h = $160 \times 4 = 640$ km

$$5. (a) \text{ Average Speed} = \frac{3 \times 5 \times 10 \times 15}{(5 \times 10) + (10 \times 15) + (15 \times 5)}$$

$$= \frac{90}{11} = 8\frac{2}{11} \text{ km/h}$$

6. (b) $S = T$

$$\begin{array}{r} \times 100 \\ 300 \text{ m} \end{array} \begin{array}{l} \swarrow 3 \\ - \\ \searrow 2 \end{array} \left. \vphantom{\begin{array}{l} \times 100 \\ 300 \text{ m} \end{array}} \right\} 1 = 100 \text{ m}$$

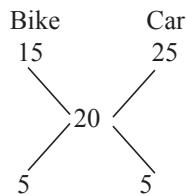
7. (a) Meenal covered = $1200 - 500 = 700$ m

$$S = 5 : 7 \quad t = 7 : 5$$

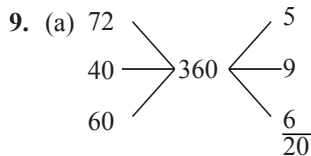
↓ ↓
Meenal Nitu

$$\text{Meenal wins by} = 1200 - 700 \times \frac{7}{5} = 220 \text{ m}$$

8. (c) Average speed = $\frac{200}{10} = 20$ km



$$D \Rightarrow 1 : 1$$



$$\text{Average speed} = \frac{3 \times 360}{20} = 54 \text{ km/h}$$

10. (a) Average speed $\Rightarrow \frac{2 \times 15 \times 10}{15 + 10} = 12$ km/h

11. (b) $D = 230 + 240 + 130 = 600$ m

$$S = (160 + 200) \frac{5}{18} = 100 \text{ m/s}$$

$$T = \frac{600}{100} = 6 \text{ sec}$$

12. (c) Average speed = $\frac{2 \times 84 \times 56}{84 + 56} = \frac{2 \times 84 \times 56}{140}$

$$= 67.2 \text{ km/h}$$

13. (a) $t_1 = \frac{10}{30} = \frac{1}{3}$ h, $t_2 = \frac{20}{40} = \frac{1}{2}$ h

$$t_3 = \frac{30}{60} = \frac{1}{2} \text{ h}$$

$$\text{Total time} = \frac{1}{3} + \frac{1}{2} + \frac{1}{2} = \frac{4}{3} \text{ h}$$

$$\text{Total D.} = 10 + 20 + 30 = 60 \text{ km}$$

$$\text{Av. S} = \frac{60}{4} \times 3 = 45 \text{ km/h}$$

14. (c) $S = \frac{3600}{12 \times 60} = 5$ m/s

$$= 5 \times \frac{18}{5} = 18 \text{ km/h}$$

15. (c) $S = \frac{475}{60} \times \frac{18}{5} = \frac{57}{2}$ km/h

$$D = \frac{57}{2} \times 1 \times 1.2 = 34.2 \text{ km}$$

16. (a) Average Speed = $\frac{2 \times 40 \times 60}{40 + 60} = \frac{4800}{100}$

$$= 48 \text{ km/h}$$

17. (d) Time = $\frac{640 + 540}{(80 - 72) \times \frac{5}{18}} = \frac{1180 \times 18}{8 \times 5} = 531$ sec

$$= \frac{531}{60} \text{ min} = 8 \text{ min } 51 \text{ sec}$$

18. (d) Distance A to B = $60 \times 3 = 180$ km

$$\text{B to C} = 2 \times 60 \times \frac{3}{2} = 180 \text{ km}$$

$$\text{Average S} = \frac{360}{3 + 2} = 72 \text{ km/h}$$

19. (b) Time = $\frac{30}{15} = 2$ h, $\frac{20}{10} = 2$ h

$$\text{Total time} = 2 + 2 = 4\text{h}$$

$$\text{Total D} = 30 + 20 = 50 \text{ km}$$

$$\text{Average speed} = \frac{50}{4} = 12.5 \text{ km/h}$$

20. (b) Distance Runs $\Rightarrow 20 \times \frac{1}{2} = 10$ km

$$\text{Cycles} \Rightarrow 32 \times \frac{5}{4} = 40 \text{ km.}$$

$$\text{Average speed} = \frac{50}{\frac{1}{2} + \frac{5}{4}} = \frac{200}{7} = 28.6 \text{ km/h}$$

21. (d) Ravina $4 \times 9 = 36$ km

Suhel $7 = 63$ km

1 = 9

22. (b) $D \Rightarrow 50 \times 1 = 50$ km

$$\Rightarrow 60 \times 3 = 180 \text{ km}$$

$$\begin{aligned} \text{Average speed} &= \frac{50 + 180}{1 + 3} = \frac{230}{4} \\ &= 57.5 \text{ km/h} \end{aligned}$$

23. (a) $S = \frac{200}{24} \times \frac{18}{5} = 30 \text{ km/h}$

24. (d) $D = 108 \times \frac{5}{18} \times 40 = 1200 \text{ m} = 1 \text{ km } 200 \text{ m}$

25. (d) Av. Speed = 48 km/h
 A to B = 60 km/h
 B to A = $\frac{60 \times 48}{2 \times 60 - 48} = 40 \text{ km/h}$

26. (c) $S = 35 + 37 = 72 \text{ km/h} = 72 \times \frac{5}{18} \text{ m/s}$
 $= 20 \text{ m/s}$
 Time = $\frac{2500}{20} = 125 \text{ sec}$
 $= 2 \text{ min } 5 \text{ sec}$

27. (c) $S = 90 \text{ km/h}, 162 \text{ km/h}$
 $t_1 = ?, t_2 = 1 \text{ sec}$
 $90 \cdot t_1 = 162 \times 1$
 $t_1 = \frac{162}{90} = \frac{9}{5} \text{ sec}$

28. (a) UP train $S = \frac{1}{8} \text{ m/s}$
 Down train = $2 \times \frac{1}{20} = \frac{1}{10} \text{ sn/sec}$
 Time = $\frac{1 + 2}{\frac{1}{8} + \frac{1}{10}} = \frac{3 \times 40}{9}$
 $= 13 \frac{1}{3} \text{ sec}$

29. (b) + 15 min - 10 min
 $\frac{25 \text{ km}}{m} - \frac{25000}{n} = 1500$
 $\frac{1}{m} - \frac{1}{n} = \frac{1500}{25000} = \frac{3}{50} \text{ sec}$

30. (a) $2 = \frac{250}{5} \text{ km/h} \Rightarrow 1 = 25$
 $7 \times 25 = 175 \text{ km/h}$

31. (a) $2 = \frac{250}{5} \text{ km/h} \Rightarrow 1 = 25$
 $3 \times 25 = 75 \text{ km/h}$
 32. (d) $2 = \frac{350}{5} \text{ km/h}$
 $1 = 35$
 $3 \times 35 = 105 \text{ km/h}$

33. (c) $2 = \frac{350}{5} \text{ km/h} \Rightarrow 1 = 35$
 $7 \times 35 = 245 \text{ km/h}$

34. (d) $\frac{S \times (S + 8)}{8} \times 10 = 25$
 $S \times (S + 8) = 20$
 $2 \quad 10$
 $S = 2 \text{ km/h}$

35. (a) $A(A + 8) \times \frac{10}{8} = 60$
 $A(A + 8) = 48$
 $4 \quad 12$
 $A = 4 \text{ km/h}$

36. (c) $A(A + 10) \times \frac{3}{10} = 360$
 $A(A + 10) = 1200$
 $30 \quad 40$
 $A = 30 \text{ km/h}$

37. (b) Time: 45, 48; Speed: 16, 15
 720
 80 km/h
 75 km/h
 $D = 80 \times \frac{45}{60} = 60 \text{ km}$

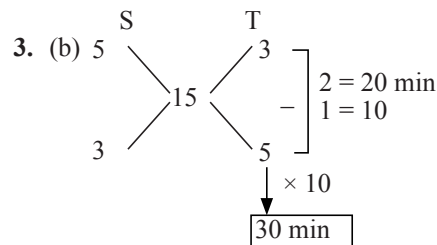
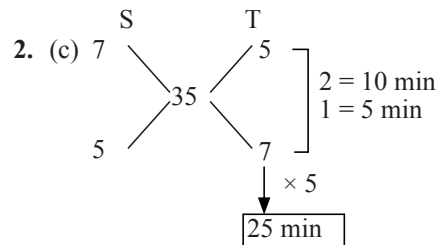
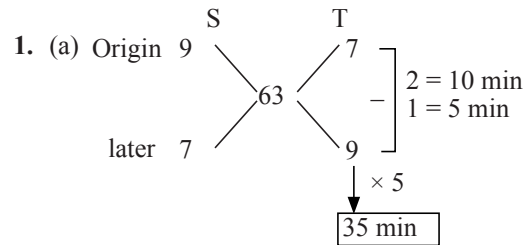
38. (b) S: A 3, B 5; T: 5, 3
 15
 $2 = 24 \text{ min}$
 $1 = 12$
 $B = 36 \text{ min}$

EXERCISE 14C

For SSC CGL and CPO Exams

- Walking at $\frac{7}{9}$ of his usual speed, a person reaches his office 10 minutes later than the usual time. His usual time in minutes is: **SSC CGL 13/06/2019 (Shift-2)**
 (a) 35 (b) 27
 (c) 42 (d) 30
- Walking $\frac{5}{7}$ of his usual speed, a person reaches his office 10 minutes later than the usual time. His usual time in minutes is: **SSC CGL 13/06/2019 (Shift-1)**
 (a) 28 (b) 30
 (c) 25 (d) 35
- Walking at $\frac{3}{5}$ of his usual speed, a person reaches his office 20 minutes later than the usual time. His usual time in minutes is: **SSC CGL 12/06/2019 (Shift-3)**
 (a) 25 (b) 30
 (c) 20 (d) 40
- A train without stoppage travels with an average speed of 80 km/h and with stoppage, it travels with an average speed of 64 km/h. For how many minutes does the train stop on an average per hour?
SSC CGL 12/06/2019 (Shift-1)
 (a) 12 (b) 8
 (c) 10 (d) 14
- A train without a stoppage travels with an average speed of 80 km/h and with a stoppage, it travels with an average speed of 72 km/h. For how many minutes does the train stop on an average per hour?
SSC CGL 11/06/2019 (Shift-3)
 (a) 8 (b) 6
 (c) 7 (d) 9
- A train without stoppage travels with an average speed of 72 km/h and with stoppage, it travels with an average speed of 60 km/h. For how many minutes does the train stop on an average per hour?
SSC CGL 11/06/2019 (Shift-2)
 (a) 10 (b) 12
 (c) 6 (d) 8
- A train without stoppage travels with an average speed of 65 km/h, and with stoppage, it travels with an average speed of 52 km/h. For how many minutes does the train stop on an average per hour?
SSC CGL 11/06/2019 (Shift-1)
 (a) 13 (b) 15
 (c) 12 (d) 14
- A train without stoppage travels with an average speed of 70 km/h, and with stoppage, it travels with an average speed of 56 km/h. How many minutes does the train stop on an average per hour?
SSC CGL 10/06/2019 (Shift-3)

- (a) 12 (b) 14
 (c) 16 (d) 15
9. A journey of 96 km takes one hour less by a fast train (A) than by a slow train (B) If the average speed of B is 16 km/h less than that of A, then the average speed (in km/h) of A is: **SSC CGL 07/06/2019 (Shift-3)**
 (a) 64 (b) 48
 (c) 54 (d) 60

SOLUTIONS

4. (a) $T = \frac{(80 - 64)}{80} \times 60 = 12 \text{ min}$

5. (b) $T = \frac{(80 - 72)}{80} \times 60 = 6 \text{ min}$

6. (a) $T = \frac{(72 - 60)}{72} \times 60 = 10 \text{ min}$

7. (c) $T = \frac{(65 - 52)}{65} \times 60 = 12 \text{ min}$

8. (a) $T = \frac{(70 - 56)}{70} \times 60 = 12 \text{ min}$

9. (b) Time $\Rightarrow \frac{96}{A - 16} - \frac{96}{A} = 1$

$\Rightarrow A(A - 16) = 96 \times 16$

$A(A - 16) = 1536$

$\begin{matrix} 48 & 32 \\ \hline & \end{matrix}$

$A = 48 \text{ km/h}$