Time Speed And Distance (LOD 02)

1. If a train runs at 5/6 of its original speed, then it reaches the station 10 min late. Then find out the usual time taken by train to cover the distance.

a) 40 min b) 45 min

c) 50 min d) 55 min

2. A car is moving with the speed of 47.52km/hr and the radius of the wheel of car is 21 cm. Calculate the approximate number of revolutions made by the wheel in one minute.

a) 250 rpm b) 200 rpm

c) 600 rpm d) 300 rpm

3. A man walking at 3km/hr crosses a square field diagonally in 2 min. The area of the field is ?

a) 25 acres b) 30 acres

c) 50 acres d) 60 acres

4. A certain distance is covered at a certain speed. If half of this distance is covered in double the time, the ratio of the two speed is ?

a) 4:1 b) 1.4 c) 2:1 d) 1:2

5. A is twice as fast as B and B is thrice as fact as C is . The journey covered by C in 42 minute, will be covered by A in ?

a) 14 min b) 28 min

c) 63 min d) 7 min

6. Ram travels a certain distance at 3 km/hr and reaches 15 min late. If he travels at 4 km/hr he reaches 15 min earlier. The distance he has to travel is ?

a) 4.5 km. b) 6 km.

c) 7.2 km. d) 12 km.

7. A thief steals a car at 1:30 p.m. and drives it at 45 km an hour. The theft is discovered at 2 p.m. and the owner sets off in another car at 50 km an hour. He will overtake the thief at ?

a) 3:30 p.m. b) 4 p.m.

c) 4:30 p.m. d) 6 p.m

8. Two train start at the same time Aligarh and Delhi and processed toward each other at 16 km/hr and 21 km/hr respectively when they meet, it is found that one train has travelled 60 km more than the other. The distance between two station is ?

a) 445 km. b) 444 km.

c) 440 km. d) 450 km.

9. A car travels a distance of 840 km at uniform speed. If the speed of the car is 10 km/hr more. It takes two hours less to cover the same distance. The original speed of the car was ?

a) 45 km/hr. b) 50 km/hr.

c) 60 km/hr . d) 75 km/hr.

10. A dog starts chasing to a cat 2 hours later. It takes 2 hours to dog to catch the cat. If the speed of the dog is 30 Km/h. What is the speed of the cat?

a) 10 km/h b) 15 km/h

c) 20 km/h d) can't be determined

11. A train 350 m long is moving at the speed of 20 km/h. It will cross a man coming from the opposite direction at the speed of 1 km/h in ?

a) 27 sec b) 35 sec

c) 45 sec d) 60 sec

12. The length of Lucknow mail is 120m and that of punjab mail is 80 m. These two trains are running in the same direction with velocities of 40 km/h and 50 km/h respectively. The time taken by them to cross each other is ?

a) 8 sec. b) 72 sec.

c) 11.5 sec. d) 12.5 sec.

13. A train passes an electric pole in 10 seconds and a platform 120 m long in 18 seconds. Its length in meters is ?

a) 150 m b) 130 m

c) 240 m d)180 m

14. The wheel of an engine of 300 cm in circumference makes 10 revolution in 6 seconds. what is the speed of the wheel (in km/h) ?

a) 18 b) 20

c) 27 d) 36

15. Anjali fires two bullets from the same place at the interval of 6 minutes but Bhagwat sitting in a car approaching the place of firing hears the second fire 5 min 32 sec after the first firing. What is the speed of car, if the speed of sound is 332 m/s?

a) 56 m/s b) 102 m/s

c) 28 m/s d) 32 m/s

16. A car crosses a man walking at 6 km/h. The man can see the things up to 450m only in one direction due to fog. He sees the car which was going in the same direction for 4.5 minutes. What is the speed of the car?

a) 9 km/h b) 12 km/h

c) 12.5 km/h d) 15 km/h

17. X and Y start walking towards each other at 8:00 am at the speeds of 3 km/h and 4 km/h, respectively. They were initially 17.5 km apart. At what time do they meet ?

a) 10 : 30 am b) 10 : 30 pm

c) 11 : 30 am d) 11 : 30 pm

18. A train leaves manipur at 6:00 am and reaches Dispur at 10:00 am. Another train leaves Dispur at 8:00 am and reaches Manipur at 11:00 am. At what time do the two trains cross each

other ?

a) 7 : 56 am b) 7 : 56 pm

c) 8 : 56 am d) 8 : 56

19. Anurag traveled a distance of 45 km in 8 h 45 min. He traveled partly on foot at 3 km/h and partly by bicycle at 8 km/h .The distance traveled on the bicycle, is ?

a) 25 km b) 15 km

c) 30 km d) 20 km

20. Running at a speed of 60 km/h, a train passed through a 1.5 km long tunnel in 2 min. What is the length of the train ?

a) 250 m b) 500 m

c) 1000 m d) 1500 m

21. The average speed of a train in the onward journey is 25% more than that of the return journey. The train halts for one hour on reaching the destination. The total time taken for the complete to and fro journey is 17 h covering a distance of 800 km. The speed of the train in the onward journey, is ?

a) 45 km/h b) 47.06 km/h

c) 50.00 km/h d) 56.25 km/h

22. The ratio between the speed of Menna and Tenna is 2 : 3. Meena takes 20 min more than Tenna to walk from A to B. If Menna had walked at double the speed, find the time she would take to from A to B. ?

a) 30 min b) 60 min

c) 45 min d) 110 min

23. One local and another express train were proceeding in the same direction on parallel tracks at 29 km/h and 65 km/h, respectively. The driver of the former noticed that it took exactly 16 s for the faster train to pass by him. What is the length of the faster train ?

a) 60 m b) 120 m

c) 160 m d) 240 m

24. A man performs 2/25 of his total journey by bus, 21/50 by car and the remaining 2 km on foot. Find the total distance covered in the whole journey. ?

a) 4 km b) 2.7 km

c) 3.4 km d) 3.8 km

25. A man in car notices that he can count 25 telephone posts in 1 min. If they are known to be 40 m apart, then at what speed is the car travelling ?

a) 52.4 km/h b) 57.6 km/h

c) 48.2 km/h d) 44.9 km/h

26. A man walks 7.5 km at a speed of 3 km/h. At what speed would the man need two walk during the next 2 h to have an average of 4 km/h for the entire session ?

a) 3.65 km/h b) 4.75 km/h

c) 5.25 km/h d) 6.50 km/h

27. Ram and Sita are walking towards each other with the speed of 8 km/h and 2 km/h, respectively over a road 160 km long. How soon will they meet ?

a) 16 h b) 8 h

c) 10 h d) 20 h

28. Two train leaves New Delhi at the same time. One travels towards North at 60 km/h and the other travels towards South at 40 km/h . After how many hours will the trains be 150 km apart ?

a) 3/2 h b) 4/3 h

c) 3/4 h d) 15/2 h

29. Walking 5/7 of his usual rate, a boy reaches his school 6 min late. Find his usual time to reach the school ?

a) 10 min b) 12 min

c) 15 min d) 18 min

30. A car during its journey travels 30 min at a speed of 40 km/h, another 45 min at a speed of 60 km/h and 2 h at a speed of 70 km/h. Find its average speed ?

a) 58 km/h b) 63 km/h

c) 67 km/h d) 71 km / h

Time Speed And Distance (LOD 02 – Answers)

1. Correct Option: C

Let the actual speed of train be x and actual time taken be y

Then new speed of train = 5x/6

Therefore, new time taken = 6y/5 (as distance is same in both case)

Given, 6y/5 - y = 1/6 hr , therefore actual time = 50 min

2. Correct Option: C

Speed in cm/minute = (Speed in km/hr x 1000 x100)/60

= 47.52x(50/3)

=79200 cm/min

And Circumference of circle = 2πr

=2 x (22 / 7) x 21

=132

No. of revolutions = (Speed in cm/minute) / circumference of circle in cm

=79200 / 132

=600 rpm

3. Correct Option: C

speed = 3 x (5/18) m/sec.

= 5 / 6 m/sec.

∴ Distance covered in 2 min. = (5 / 6) x 2 x 60 m

= 100 m.

∴ Length of diagonal = 100 m

Area of the field = 1/2 x diagonal2

=1/2 x 100 x 100 m2

= 5000 m2

= 50 acres.

4. Correct Option: A

Let x km . be covered in y hrs.

then, 1st speed = (x / y) km/hr.

2nd speed = [(x/2) / 2y)] km/hr.

= (x/4y) km/hr.

∴ Ratio of speed = x/y : x/4y = 1 :1/4 = 4: 1

5. Correct Option: D

Let C' s speed = x km/hr.

Then, B's speed = 3x km/hr.

and A's speed = 6x km/hr.

∴ Ratio of speed of A, B, C

= 6x : 3x : x = 6 : 3 : 1

Ratio of times taken = 1/6 : 1/3 : 1 or 1 : 2 : 6

∵ 6 : 1 : : 42 : t

⇒ 6t = 42

⇒ t = 7 min.

6. Correct Option: B

Let the distance be x km.

Then, x/3 - x/4 = 30/60

⇒ (4x - 3x) / 12 = 1/2

∴ x = 6 km.

7. Correct Option: B

Distance covered by thief in (1/2) hour = 20 km.

Now , 20 km is compensated by the owner at a relative speed of 10 km/hr in 2 hours so, he overtake the thief at 4 p.m.

8. Correct Option: B

Suppose they meet after y hours .

Then, 21y - 16y = 60

⇒ y = 12

∴required distance = (16 x 12 + 21 x 12) km.

= 444 km.

9. Correct Option: C

Let the original speed be x km/hr.

Then, [840/x - 840/(x + 10)] = 2

⇒ 840 (x + 10) - 840x = 2x (x+10)

⇒ x2 + 10x - 4200 = 0

⇒ (x + 70) (x - 60) = 0

∴ x = 60 km/hr.

10. Correct Option: B

Time = Distance advanced / Relative speed

2 = 2x / (30 - x)

⇒ x = 15 km/h

11. Correct Option: D

Relative speed = 20 + 1 = 21 km/h = 21 x 5/18 = 35/6 m/s

Time = Length of train / Relative speed = (350/35) x 6 = 60 s

12. Correct Option: B

Relative speed = 50 - 40 = 10 km/h = 50/18 m/s

∴ Time taken = Sum of length of the trains / Relative speed

= (200/50) x 18 = 72 sec.

13. Correct Option: A

Let the length of train be x m, then

x/10 = (120 + x)/18

⇒ x = 150m

14. Correct Option: A

Circumferences means one resolutions .

Therefore, distance covered in 10 resolutions =300 x 10 = 30 m

i.e., 30 meters in 6 seconds.

∴ Speed of wheel = 30/6 m/s = 5 m/s

∴ 5 m/s = 5 x (18/5) = 18 km/h

15. Correct Option: C

(speed of wind) / (speed of car) = (Time utilised) / (time saved)

⇒ 332/x = 332/28

∴ x = 28 m/s

16. Correct Option: B

Time = Total distance / Relative speed

4.5/60 hr. = (450/1000) / x

⇒ x = 6 km/h

Relative speed = Speed of car - Speed of man

6 = x - 6

⇒ x = 12 km/h

17. Correct Option: A

Let they meet after x h.

Then, according to the question,

$3x + 4x = 17.5$

$\Rightarrow 7x = 17.5$

$\therefore x = 17.5 / 7 = 2.5$ h

So, they meet 2.5 h after 8:00 am.

It means they meet at 10:30 am.

18. Correct Option: C

Let distance between Manipur and Dispur = D km

Average speed of train from Manipur = D/4 km/h

Average speed of train from Dispur = 2D/7 km/h

Let they meet T h after 6:00 am.

Then, according to the question,

$(D/4 \times T) + 2D/7 \times (T - 2) = D$

$\Rightarrow T/4 + 2(T - 2)/7 = 1$

$\Rightarrow 7T + 8(T - 2) = 28$

$\Rightarrow 15T = 44$

$\therefore T = 44/15$ h = 2h 56 min

Clearly, trains meet 2 h 56 min after 6:00 am.

It means the trains meet at 8:56 am.

19. Correct Option: C

Let the distance traveled on foot be x km

Then, distance converted by bicycle = (45 - x) km

$\therefore x/3 + (45 - x)/8 = 83/4 = 35/4$

$\Rightarrow (8x + 135 - 3x)/24 = 35/4$

$\Rightarrow 5x + 135 = 210$

$\Rightarrow 5x = 75$

$\Rightarrow x = 15$

$\therefore$ Distance converted by bicycle = (45 - 15) = 300 km

20. Correct Option: B

Suppose length of the train = L m

Speed of the train = 60 km/h = 60 x 1000 = 60000 m/h

Length of tunnel = 1.5 km = 1500 m

Time taken by train = 2 min = 1/30 h

Time = Distance/Speed

$\therefore 1/30 = L + 1500/60000$

$\Rightarrow l = 500$ m

21. Correct Option: D

Let the speed of the train during returning journey be x km/h

Speed during onward journey = $x + 25x/100 = 5x/4$ km/h.

Distance coverd in onward journey = 800 / 2 = 400 km

Total time taken = Covered distance / Speed

Time taken by train in onward journey = $400/(5x/4)$

and time taken in returning journey = $400/x$

Thus, $400/(5x/4) + 400/x = 16$

$\Rightarrow 320/x + 400/x = 16$

$\Rightarrow 16x = 720$

$\therefore x = 45$ km/h

Speed of the train in the onward journey = $5 \times 45/4 = 56.25$ km/h

22. Correct Option: A

Since, ratio of speeds of Meena and teena is 2 : 3.

$\therefore$ Ratio of time taken = 3 : 2

If, Teena takes x min to walk from A to B, then Meena takes (x + 20) min.

∴ (x + 20)/x = 3/2 ⇒ 2x + 40 = 3x

∴ x = 40 min

Hence, Meena takes 60 min walking at her usual speed and at double the speed, she would take 30 min.

23. Correct Option: C

Relative speed of express train to local train = 65 - 29 = 36 km/h

= 36 x (5/18) m/s = 10 m/s

∴ Length of faster train = 10 x 16 = 160 m

24. Correct Option: A

Let total distance covered in the whole journey = L km

∴ 2L/25 + 21L/50 + 2 = L

⇒ L = 4

∴ Total distance covered = 4 km

25. Correct Option: B

Number of gaps between 25 telephone posts = 24

Distance travelled in 1 min = 40 x 24 = 960 m

Speed = (960 x 60)/1000 = 57.6 km/h

26. Correct Option: C

Let speed of walking be V km/h.

Total time taken = (7.5/3) + 2 = 4.5 h

Total distance covered = (7.5 + 2V) km

∴ (7.5 + 2V)/4.5 = 4

⇒ 7.5 + 2V = 18

⇒ 2V = 10.5

⇒ V = 5.25

∴ Speed of walking = 5.25 km/h

27. Correct Option: A

Distance = 160 km

Relative Speed = 8 + 2 = 10

Time = Distance/Relative speed = 160/10 = 16 h

28. Correct Option: A

Relative speed = 60 + 40 = 100 km/h

Time = Distance/speed = 150/ 00 = 3/2 h

29. Correct Option: C

Since, the boys now walks at 5/7 of usual speed, so he will take 7/5 of his usual time.

⇒ Extra time = (7/5 - 1) x Usual time = 6 min (known)

⇒ 2/5 x Usual time = 6

∴ Usual time = 15 min

30. Correct Option: B

Average speed = [(30/60) x 40 + (45/60) x 60 + (2 x 70)] / [(30/60) + (45/60) + 2]

= (20 + 45 + 140)/[(30 + 45 + 120)/60]

= (205/195) x 60 km/h

= 63.07 km/h

= 63 km/h