Octahedral classes, kharadi

2nd floor, yashwant plaza, near bank of India,
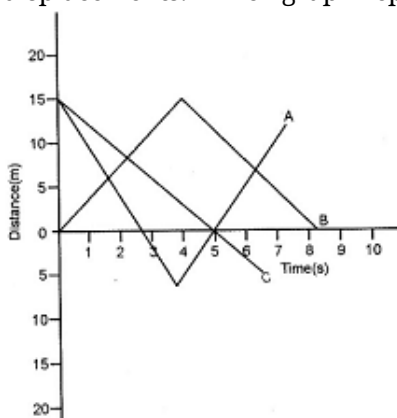
Class 09 - Science

motion and nlm

Maximum Marks: 40   **Time Allowed: 1 hour and 30 minutes**
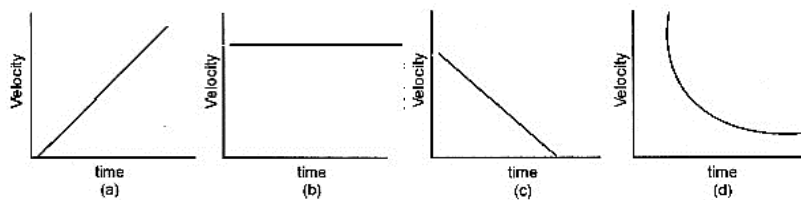
Section A

1. What is the difference between uniform velocity and non-uniform velocity? **2**

2. An electric engine has a velocity of 120 kmh^{-1}. How much distance will it travel in 30 s? **2**

3. Distinguish between speed and velocity. **2**

4. A car starts from rest and moves along the X-axis with constant acceleration 5 ms^{-2} for 8 seconds. If it is continue with constant velocity, what distance will the car cover in 12 seconds since it started from the rest? **2**

5. The driver of a train travelling at 40 ms^{-1} applies the brakes as a train enters a station. The train slows down at a rate of 2 ms^{-2}. The platform is 400 m long. Will the train stop in time? **2**

6. An athlete completes one round of a circular track of diameter 200 m in 40 s. What will be the distance covered and the displacement at the end of 2 minutes 20 s? **2**

7. A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 ms^{-2} for 8.0 s. How far does the boat travel during this time? **2**

8. Discuss the graphs A, B and C shown in the figure. Compare the total distance travelled and the displacements. Which graph represents a motion with negative acceleration? **2**

9. What happens when you shake a wet piece of cloth? Explain your observation. **2**

10. Abdul while driving to school computes the average speed for his trip to be 20 kmh^{-1}. On his return trip along the same route, there is less traffic and the average speed is 40 kmh^{-1}. What is the average speed for Abdul's trip? **2**

11. Two trains A and B of length 400 m each are moving on two parallel tracks with uniform speed of 72 kmh^{-1} in the same direction with A ahead of B. The driver of B decides to overtake A and accelerates by 1 ms^{-2}. If after 50s, the guard of B just passes the driver of A, what was the original distance between them? **2**

12. A car travels a certain distance with a speed of 40 kmh^{-1} and returns with a speed 40 kmh^{-1}. Calculate the average speed for the entire journey? **2**

13. An object has moved through a distance. Can it have zero displacement? If yes, explain with an example. **2**

14. Distinguish between terms speed and velocity. **2**

15. What do you understand by a non-uniform velocity? **2**

16. A trolley, while going down an inclined plane, has an acceleration of 2 cms^{-2} . What will be its velocity 3s after the start? **2**

17. A racing car has uniform acceleration of 4 ms^{-2}. What distance will it cover in 10 s after start? **2**

18. What type of motion is represented by the following graphs. **2**

19. With the help of a graph, derive the relation v = u + at. **2**

20. A train is travelling at a speed of 90 kmh^{-1}. Brakes are applied so as to produce a uniform acceleration of -0.5 ms^{-2}. Find how far the train will go before it is brought to rest. **2**