



REVISION SHEET

SUBJECT: PHYSICS

CLASS-IX

TERM 1

Choose the correct option:

1. An object starts from rest and moves with a constant acceleration of 2 m/s^2 . What is its velocity after 5 seconds?
a) 10 m/s b) 2 m/s c) 20 m/s d) 5 m/s
2. Arun goes from station A to station B covering a distance of 10km. Then he returns back from station B to station A again covering a distance of 10 km. Then
a) Total distance covered as well as displacement of Arun is 20 km
b) Total distance covered as well as displacement of Arun is zero
c) Total distance covered by Arun is 20km but his displacement is zero
d) Total displacement of Arun is 20km but distance covered by him is 0
3. If the displacement of an object is proportional to square of time, then the object moves with
a) Uniform velocity
b) Uniform acceleration
c) Increasing acceleration
d) Decreasing acceleration
4. An athlete completes one round of circular track of radius R in 40 seconds. What will be his displacement at the end of 2 min 20 seconds?
a) Zero b) 2 R c) $2\pi R$ d) $7\pi R$
5. What force will change the velocity of a body of mass 1kg from 20m/s to 30 m/s in two seconds?
a) 1 N b) 5 N c) 10 N d) 25 N
6. Which of the following is an example of balanced forces?
a) A moving car accelerating b) A book resting on a table
c) A person pushing a wall and it doesn't move d) both b and c
7. Which of the given example can be explained by using the Newton's first law of motion?
a) Rowing of boat
b) Rocket propulsion
c) Wearing a seat belt in a car
d) Releasing an arrow from the bow
8. A passenger in a moving train tosses a coin that falls behind him. It means that the motion of the train is
a) uniform b) accelerated c) retarded d) both b and c

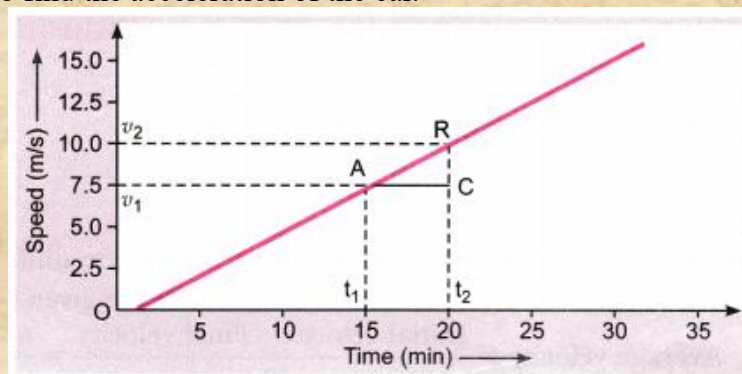
In each of the following questions, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- a) Both A and R are true, and R is correct explanation of the assertion.
 - b) Both A and R are true, but R is not the correct explanation of the assertion.
 - c) A is true, but R is false.
 - d) Both assertion and reason are false.
9. **Assertion:** When a striker hits at the bottom of a pile of coins the bottom coin come out without disturbing other coins

Reason: For every action there must be an equal and opposite reaction.

10. **Assertion:** A single force cannot exist in nature
Reason: As per Newton's 3rd law of motion for every action there must be an equal and opposite reaction
11. **Assertion:** An athlete runs some distance before taking a long jump
Reason: Athlete gains momentum by running some distance.
12. **Assertion:** A quick collision between two bodies is more violent than a slow collision, even when the initial and the final velocities are identical.
Reason: Because the rate of change of momentum which determines the force is greater in the first case.
13. **Assertion:** An object can have acceleration even if its velocity is zero at a given instant of time.
Reason: An object thrown vertically up versus momentarily at rest at the highest point of its path.
14. **Assertion:** Average velocity and instantaneous velocity have same value in a uniform motion.
Reason: In uniform motion the velocity of moving object changes uniformly.
15. **Assertion:** An object can have acceleration even if its velocity is zero at a given instant of time.
Reason: An object thrown vertically up versus momentarily at rest at the highest point of its path.
16. **Assertion:** A particle in motion may have constant speed but variable velocity
Reason: A particle in motion may have constant velocity but variable acceleration.
17. Under what condition will the distance covered and the displacement of a moving object will have the same magnitude?
18. A body thrown in a vertically upper direction rises up to a high edge and comes back to the position of start. Calculate
 - a) total distance traveled by the body and
 - b) the displacement of the body
19. A stone describes a circular path with a constant speed. State and define type of motion of the stone?
20. Define balance and unbalanced forces with examples.
21. Rakesh tries to push a box on a rough floor but is unable to move it. Name and define the force which balances the force applied by him.
22. What would happen if a fielder stops the fast-moving ball suddenly? Justify your answer.
23. Why does a gun recoil when it fires a bullet?
24. Lokesh saw many apples on the tree but was not able to pluck them. His friend asked him to shake the branches while shaking few apples fell down. Explain Why?
25. Name SI unit of force. Define SI unit of force from second law of motion.
26. A force produces an acceleration of 5 m/s^2 when applied on a body of mass 2kg. Find the magnitude of force. How much acceleration will the same force produce when applied to a body of mass 4 kg?
27. A car is running at a rate of 70 km/h and suddenly brakes are applied so as to stop the car in 10 minutes. Find the force of brakes. (Assume total mass of car and passengers as 800 kg)
28. Automobiles are provided with shockers. Why?
29. A bullet of mass 4 g when fired with a velocity of 50 ms^{-1} , can enter a wall up to a depth of 10 cm. How much will be the average resistances offered by the wall?
30. An object projected upwards with an initial velocity of 30 m/s decelerates uniformly at the rate of 10 m/s^2 . Find the following:

- a) The maximum height at which the velocity of the body reduces to zero.
 b) The time taken by the object to reach the maximum height.
31. Given below is the velocity-time graph for the motion of the car. What does the nature of the graph show? Also find the acceleration of the car.

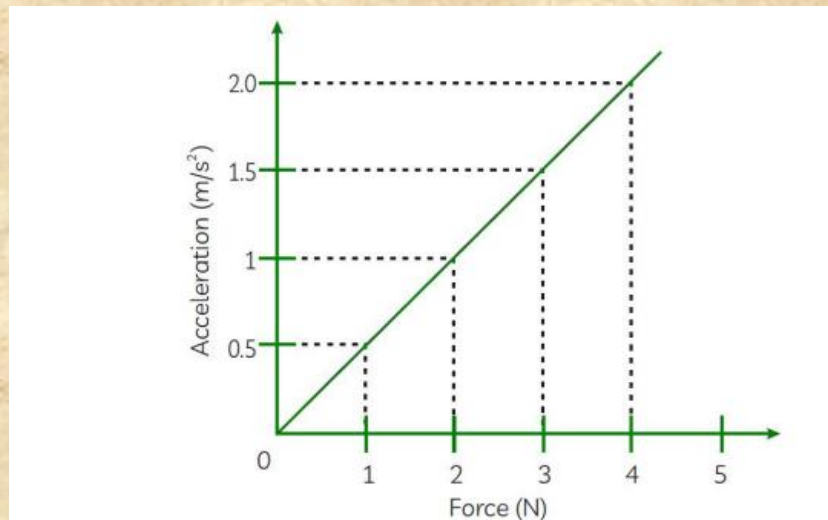


32. A constant retarding force of 50 Newton is applied to a body of mass 20 kg moving initially with a speed of 15 m/s. How long does that body take to stop?
33. Using following data, draw time-displacement graph for a moving object:

Time(s)	0	2	4	6	8	10	12	14	16
Displacement (m)	0	2	4	4	4	6	4	2	0

Use this graph to find average velocity for first 4 s, for next 4 s and for last 6 s.

34. Priya was travelling in a bus on a straight national highway. Initially, the bus was moving with a velocity of 36 km h^{-1} . The driver pressed the accelerator and after 10 seconds the velocity increased to 54 km h^{-1} . The bus then maintained this speed for some time. Suddenly, the driver noticed a traffic jam ahead and applied the brakes. The bus came to a complete stop in 15 seconds. Priya noticed that the bus jerked differently during speeding up compared to slowing down. Her physics teacher later explained that the acceleration was acting in the direction of velocity when the bus was speeding up, and opposite to the direction of velocity when it was slowing down.
- (a) What is the average acceleration of the bus when the driver pressed the accelerator?
 (b) What is the average acceleration of the bus when the brakes were applied?
 (c) The teacher said acceleration was positive during speeding up and negative during braking. Explain the meaning of the negative sign in the acceleration during braking, and write the SI unit of average acceleration. Also state one condition when an object can be moving very fast yet have zero acceleration.
35. Mahesh measures the acceleration of the Volvo using an apparatus. The result is obtained as shown in the Acceleration-Force graph. It is known that the more is force applied to an object, the more is its acceleration. Acceleration is proportional to force, as may be demonstrated experimentally. It may also be demonstrated that the greater the object's mass, the lower is its acceleration for the same force. The force must rise in proportion to the mass to obtain the same acceleration.



- (a) Calculate the mass of Volvo from given graph if Yogesh takes the force applied is 1 N.
- (b) If the force applied on the Volvo as doubled and acceleration is halved. What is the ratio of mass?
- (c) Define momentum. What happens to the momentum of a body if its speed is doubled?