

# Paper\_f8bd0bf3-da8c-4618-9b15-93dc8cdb8784

Exam Type: Unit Test

Paper Type: chapterwise

Duration: 60 mins

Total Marks: 50

Total Questions: 10

Instructions:

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Subject: Physics

Chapter: Motion

School: delhi public school

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Question: A car travels 100 meters in 10 seconds. What is its average speed?

Answer: undefined

Correct Answer: 10 m/s

Question: Define displacement. How is it different from distance?

Answer: undefined

Correct Answer: Displacement is the shortest distance between the initial and final positions with direction. Distance is the total path length covered. Displacement is a vector quantity while distance is a scalar quantity.

Question: A ball is thrown vertically upwards with an initial velocity of 20 m/s. Neglecting air resistance, what is the maximum height it reaches? ( $g = 10 \text{ m/s}^2$ )

Answer: undefined

Correct Answer: 20 m

Question: State the three equations of motion.

Answer: undefined

Correct Answer:  $v = u + at$ ,  $s = ut + (1/2)at^2$ ,  $v^2 = u^2 + 2as$

Question: What is uniform circular motion? Give two examples.

Answer: undefined

Correct Answer: Uniform circular motion is the motion of an object in a circle at a constant speed.

Examples: A satellite orbiting the Earth, the tip of a clock's second hand.

Question: Differentiate between speed and velocity.

Answer: undefined

Correct Answer: Speed is the rate of change of distance, while velocity is the rate of change of displacement. Speed is a scalar quantity and velocity is a vector quantity.

Question: A train starts from rest and accelerates uniformly at a rate of  $2 \text{ m/s}^2$  for 10 seconds. Calculate the distance traveled by the train.

Answer: undefined

Correct Answer: 100 m

Question: Explain what is meant by retardation. Give an example.

Answer: undefined

Correct Answer: Retardation is negative acceleration, meaning the velocity of the object is decreasing. Example: A car applying brakes.

Question: A car is moving with a velocity of 10 m/s. The driver applies brakes and retards the car uniformly at a rate of  $0.5 \text{ m/s}^2$ . Find the time taken for the car to come to rest.

Answer: undefined

Correct Answer: 20 s

Question: Derive the equation of motion:  $s = ut + (1/2)at^2$

Answer: undefined

Correct Answer:  $s = ut + (1/2)at^2$  Derivation