Model Question Paper prepared by www.educationobserver.com

SUMMATIVE ASSESSMENT – TERM II, 2026–27

PHYSICS (English Medium)

SET 1

Standard: IX **Time: 1½ Hours**

Total Score: 40

Instructions

- The first 15 minutes is cool-off time. Use it to read the questions and plan your answers.
- This question paper has 18 questions in Sections A, B, C and D.
- Choices are given for questions 6, 9, 14, 15 and 18. Answer only one of the options.
- Take g = 10 m/s² wherever needed.

Section A

Answer all questions from 1 to 4. Each carries 1 score. **(4 × 1 = 4)**

1. Which of the following is the SI unit of momentum? (1)

a) kg m/s b) N/m c) kg m/s² d) J

2. **Statement:** Passengers standing in a bus fall forward when the bus stops suddenly. (1)

Reason: The body of a passenger tends to remain in its state of motion (inertia of motion).

a) Both the statement and the reason are true, and the reason explains the statement.

b) Both the statement and the reason are true, but the reason does not explain the statement.

c) The statement is true, but the reason is false.

d) Both the statement and the reason are false.

3. The refractive index of a glass slab is 1.5. If the speed of light in air is 3×10^8 m/s, the speed of light in this glass is (1)

a) 2×10^8 m/s b) 4.5×10^8 m/s

c) 1.5×10^8 m/s d) 3×10^8 m/s

4. In which of the following situations is no work done on the object, in the scientific sense? (1)

a) A man pushes a wall, but the wall does not move.

b) A coolie lifts a load onto his head.

c) A coconut falls from a tree.

d) A horse pulls a cart along a road.

Section B

Answer questions 5 to 11. Questions 6 and 9 have a choice. Each carries 2 scores. **(7 × 2 = 14)**

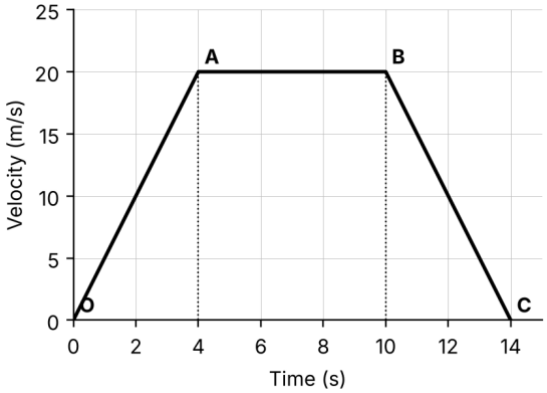
5. A ball of mass 0.2 kg is moving with a velocity of 10 m/s.

a) Calculate its momentum. (1)

b) What will be its momentum if the velocity is doubled? (1)

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6 A. The velocity–time graph of a vehicle is given below.



a) Find the acceleration of the vehicle from O to A. (1)

b) Find the distance travelled from A to B. (1)

OR

6 B. A car starts from rest and moves with a uniform acceleration of 2 m/s² for 10 s.

a) Find its velocity at the end of 10 s. (1)

b) Calculate the distance travelled in this time. (1)

7. A gun moves backward (recoils) when a bullet is fired from it. Explain the reason on the basis of a law of motion. (2)

8. Give reasons.

a) The walls of a dam are made thicker at the bottom. (1)

b) A ship floats a little higher in sea water than in river water. (1)

9 A. A force of 50 N moves a box through 4 m in the direction of the force.

a) Calculate the work done. (1)

b) If this work is done in 10 s, what is the power? (1)

OR

9 B. An object of mass 2 kg is lifted to a height of 5 m.

a) Find the potential energy gained by it. (1)

b) What will be its kinetic energy just before it hits the ground when it is dropped? Why? (1)

10. Newton's universal law of gravitation explains the force between any two bodies.

a) Write the mathematical form of this law. (1)

b) What is the value of the universal gravitational constant G? (1)

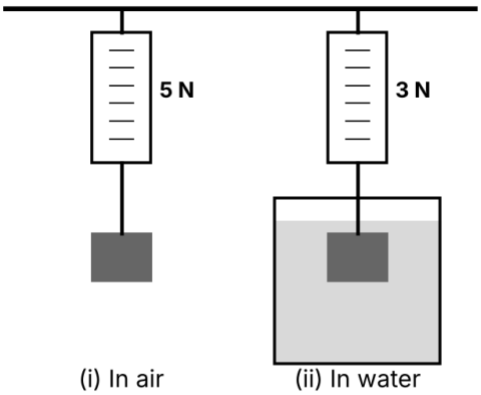
11. An iron nail sinks in water, but a huge ship made of iron floats. Explain why. (2)

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Section C

Answer questions 12 to 17. Questions 14 and 15 have a choice. Each carries 3 scores. (6 × 3 = 18)

12. A stone is weighed using a spring balance, first in air and then fully immersed in water.



a) What is the apparent loss of weight of the stone? (1)

b) What is the buoyant force acting on it? (1)

c) What is the weight of the water displaced by the stone? Which principle helps you find it? (1)

13. Name the law of motion related to each situation.

a) Dust comes off a carpet when it is beaten with a stick. (1)

b) A swimmer pushes the water backward to move forward. (1)

c) A fielder needs more force to stop a fast-moving ball than a slow one of the same mass. (1)

14 A. The weight of a boy on the Earth is 600 N. The acceleration due to gravity on the Moon is about one-sixth of that on the Earth.

a) What is the mass of the boy? (1)

b) What will be his weight on the Moon? (1)

c) Will his mass change on the Moon? Why? (1)

OR

14 B. A stone is dropped from the top of a cliff. It reaches the ground after 3 s.

a) What is meant by free fall? (1)

b) Find the velocity of the stone just before it hits the ground. (1)

c) Find the height of the cliff. (1)

15 A. A water tank is 2 m deep and is full of water (density of water = 1000 kg/m³).

a) Calculate the pressure due to water at the bottom of the tank. (1)

b) Water comes out with more force from a tap on the ground floor than from a tap on the first floor. Why? (1)

c) Apart from depth, write one more factor on which liquid pressure depends. (1)

OR

15 B. A hydraulic lift works on Pascal's law.

a) State Pascal's law. (1)

b) A force of 100 N is applied on the small piston of area 0.01 m². What force is produced on the large piston of area 0.5 m²? (2)

16. An object weighs 50 gwt in air and 30 gwt when fully immersed in water.

a) Calculate the relative density of the object. (1)

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b) Will the object float or sink in water? Why? (1)

c) Name the device used to find the relative density of a liquid directly. (1)

17. The speed of a car of mass 1000 kg increases from 10 m/s to 20 m/s.

a) Find the initial kinetic energy of the car. (1)

b) Find its final kinetic energy. (1)

c) How much work is done by the engine to increase the speed? (1)

Section D

Answer question 18 (A or B). It carries 4 scores. **(1 × 4 = 4)**

18 A. A bullet of mass 20 g is fired from a gun of mass 4 kg with a velocity of 400 m/s.

a) Find the momentum of the bullet. (1)

b) What was the total momentum of the gun and bullet before firing? (1)

c) Calculate the recoil velocity of the gun. (1)

d) Which law did you use to find the answer to (c)? (1)

OR

18 B. The velocity of a body of mass 5 kg increases from 4 m/s to 10 m/s in 3 s when a force acts on it.

a) Find the initial momentum. (1)

b) Find the final momentum. (1)

c) Find the rate of change of momentum. (1)

d) What is the force acting on the body? (1)

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