

Class: IX

Time Allowed: 20 minutes

MODEL PAPER EXAMINATION 2025

SUBJECT: PHYSICS

Q1: (SECTION "A")

Marks: 12

Note: Attempt **ALL** questions from section 'A'. Each question carries **ONE** mark.

- How many significant figures are in the number 0.00705?
A. 2 B. 3 C. 4 D. 5
- The motion of a soccer ball on the ground is:
A. Linear motion B. Circular motion C. Vibratory motion D. Random motion
- Satellites are placed into orbit using:
A. Helicopters B. Aeroplanes C. Rockets D. None of these
- The purpose of springs in brakes and clutches is to:
A. Restore original position B. Measure forces C. Absorb strain energy D. Absorb shocks
- Friction opposes motion between two bodies in contact due to:
A. Charge on bodies B. Weight of bodies C. Roughness of surfaces D. Mass of bodies
- If a force of 6 N moves an object by 3 m in the direction of the force, the work done is:
A. 6 Joules B. 12 Joules C. 18 Joules D. None of these
- A spring balance is used to measure:
A. Mass B. Weight C. Elasticity D. Density
- Which of the following is a natural satellite?
A. Earth B. Jupiter C. Moon D. Mars
- The rate of change of position in a specific direction is called:
A. Displacement B. Acceleration C. Velocity D. Speed
- Distance is a _____ quantity:
A. Vector B. Scalar C. Both A and B D. None of these
- The motion of a pendulum is classified as:
A. Circular B. Translatory C. Linear D. Vibratory
- A man pulls a 25 kg crate across a level ground using a horizontal force of 60 N. If a constant frictional force of 20 N acts on the crate, what is its acceleration?
A. 0.63 m/s² B. 1.6 m/s² C. 2.4 m/s² D. 3.2 m/s²

(Practical Based Assessment)

Marks: 15

13. A student determines the circumference of a golf ball. Which instrument gives this reading?
A. Calipers B. Micrometer C. Rule D. Tape
14. The diameter and the length of a thin wire, approximately 50 cm in length, are measured as precisely as possible. What are the best instruments to use?

	Length	Diameter
A	Vernier Calipers	Micrometer
B	Tape	Rule
C	Rule	Vernier Calipers
D	Rule	Micrometer

15. A student drops a table-tennis ball from rest into the air. What happens to the velocity and acceleration of the ball during the first few seconds after it is released?

	Velocity	Acceleration
A	Increases	Increases
B	Decreases	Decreases
C	Decreases	Increases
D	Increases	Decreases

16. In which scenario does friction act in the same direction as the forward motion of the object it is affecting?

- A. A suitcase accelerating on a conveyor belt
B. Sandpaper rubbing against a wooden block
C. The skis of a skier accelerating downhill on smooth snow
D. The tires of a car during braking

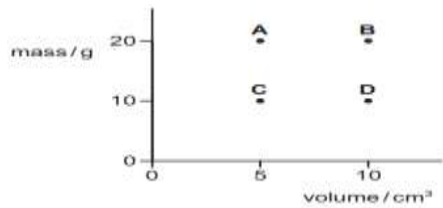


17. Ahmed pushes a heavy box along the ground. A force acts between Ahmed’s hands and the box, and a force acts between his feet and the floor. Determine the direction of these forces on Ahmed.



	Force on Ahmed’s hands	Force on Ahmed’s feet
A	Towards the left	Towards the left
B	Towards the left	Towards the right
C	Towards the right	Towards the left
D	Towards the right	Towards the right

18. If the weight of an object is measured as 12 N in air and 9 N in water, what is the density of the object? (Assume the density of water is 1000 kg/m³)
- A. 1000 kg/m³ B. 1500 kg/m³ C. 3000 kg/m³ D. 6000 kg/m³
19. During summer, the temperature of rocks increases more quickly than the temperature of a nearby lake. This is because of:
- A. State of matter B. Specific heat C. Evaporation D. Atmospheric pressure
20. Saima plots the mass and volume of 4 different objects. Which one has the smallest density?



Class: IX MODEL PAPER EXAMINATION 2025
Time: 2 hours 40 minutes SUBJECT: PHYSICS (SECTION “B” AND SECTION “C”)
SECTION “B” (SHORT ANSWER QUESTIONS)

Total Marks 48
24 Marks
12

Q2(a): Attempt any **FOUR** questions from this part.

- i. Give definitions for the following:
a) Atomic Physics b) Plasma Physics c) Nuclear Physics
- ii. What is uniform velocity? Define it.
- iii. Explain translatory motion and provide an example to illustrate it.
- iv. Define temperature and write the equation to convert Fahrenheit to Celsius.
- v. What do you understand by centripetal force?
- vi. State Newton's third law of motion and explain it briefly.
- vii. Define a system and distinguish it from an isolated system.
- viii. Define friction and explain its significance in everyday motion.

Q2(b): Attempt any **FOUR** questions from this part.

12

- i. A truck with a mass of 1500 kg has an engine producing an acceleration of 3 m/s². If 500 kg of cargo is added, what will the new acceleration be?
- ii. If a body with a mass of 50 kg experiences a force of 400 N, what is the resulting acceleration?
- iii. A stone is dropped from a height of 100 m. Calculate the time it takes to hit the ground (take g = 9.8 m/s²).
- iv. A cylinder contains 25 m³ of gas at a pressure of 200,000 Pa. If the volume decreases to 15 m³, calculate the final pressure, assuming constant temperature.
- v. Calculate the spring constant if a spring stretches by 4 cm under a load of 20 N.
- vi. A worker applies a force of 20 N at each end of a wrench to generate a torque of 80 Nm. Determine the length of the moment arm.
- vii. A machine performs 1200 J of work in 20 minutes. Calculate the power output of the machine.
- viii. Find the resultant force of three forces: 20 N along the x-axis, 12 N at an angle of 45° with the x-axis, and 8 N along the y-axis.

SECTION “C” (DETAILED ANSWER QUESTIONS)

24 Marks

Q3: Attempt any **FOUR** questions from this section.

- i. What is an artificial satellite? Derive the formula for the velocity of a satellite orbiting the Earth, and show that it is given by $v = \sqrt{g_h(R_E + h)}$, where g_h is the acceleration due to gravity at the satellite's altitude, R_E is the radius of the Earth, and h is the height of the satellite above the Earth's surface.
- ii. Define couple.
- iii. What is a hydraulic lift or jack? Explain its construction and describe how it works.
- iv. State Pascal's law. Provide examples of its applications in daily life.
- v. Describe Artificial gravity verity.
- vi. Define linear expansion and volumetric expansion. Derive the equation $\Delta L = \alpha L \Delta T$.