

GREENLAWNS SCHOOL, WORLI

Final Examination 2025-26

Physics

STD: IX

Marks: 80

Date: 02/03/2026

Time: 2 hrs.

Attempt all questions from Section A and any four questions from Section B All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer. Omission of essential working will result in loss of marks. The intended marks for questions or parts of questions are given in brackets []

Section-1

(Attempt **all** questions from this section)

Question 1 Choose the correct answers to the questions from the given options.

(Do not copy the question, write the correct answers only.)

[15]

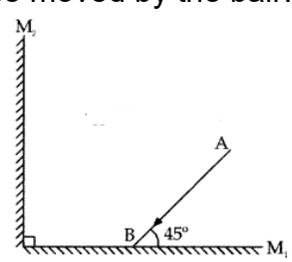
- i. Which of the following characteristics of a spherical mirror is given by the ratio of the size of the image to size of the object
- | | |
|-----------------|------------------------|
| a) Aperture | c) Magnification |
| b) Focal length | d) Radius of curvature |
- ii. If the mass of the body is doubled and its velocity becomes half, then the linear momentum of the body will
- | | |
|------------------|----------------------|
| a) become double | b) become half |
| c) remain same | d) become four times |
- iii. In case of erect object having inverted image, linear magnification is
- | | |
|-------------|---------------------|
| a) Positive | b) negative |
| c) zero | d) no definite sign |
- iv. A real image is formed by a convex mirror when the object is placed at
- | | |
|------------------------|---------------------------|
| a) infinite | b) between focus and pole |
| b) between c and focus | d) None of these |
- v. When a body vibrates, it compresses the air surrounding and forms a high density area known as
- | | |
|---------------|----------------|
| a) refraction | b) reflection |
| c) refraction | d) compression |
- vi. Inertia of a body makes the body:
- | | |
|-------------------------------|---|
| a) to move with uniform speed | b) to increase its speed |
| c) Retard due to weight | d) oppose the change in its state of motion |

- vii. Current in a circuit flows:
- a) In a direction from high potential to low potential
 - b) In a direction from low potential to high potential
 - c) In the direction of flow of electrons
 - d) In any direction
- viii. Which of the following expression is correct?
- a) $R = VI$
 - b) $V = IR$
 - c) $R = I / V$
 - d) $I = R / V$
- ix. In a uniform magnetic field, the field lines are:
- a) curved
 - b) Parallel equidistant straight lines
 - c) Parallel but non-equidistance spaced straight lines
 - d) Nothing can be said
- x. The absolute zero on Celsius scale is:
- a) $0^{\circ}C$
 - b) $-32^{\circ}C$
 - c) $100^{\circ}C$
 - d) $-273^{\circ}C$
- xi. Speed of sound depends upon
- a) Temperature of the medium
 - b) Pressure of the medium
 - c) Temperature of source producing sound
 - d) Temperature and pressure of medium
- xii. Why is the speed of sound in solids higher than in gases?
- a) Particles in solids are closely packed
 - b) Solids are more rigid
 - c) Solids are more elastic
 - d) All of the mentioned
- xiii. A magnetic pole induces polarity on the near end and a polarity on the farther end of the iron bar.
- a) opposite, opposite
 - b) similar, similar
 - c) opposite, similar
 - d) similar, opposite
- xiv. The magnetic field lines of the earth are to the earth's surface near the magnetic poles and to the earth's surface near the magnetic equator.
- a) parallel, normal
 - b) normal, parallel
 - c) normal, normal
 - d) parallel, parallel
- xv. **Assertion:** The flash of lightening is seen before the sound of thunder is heard.
Reason: Speed of sound is greater than speed of light.
- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 - (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 - (c) Assertion (A) is true but reason (R) is false.
 - (d) Assertion (A) is false but reason (R) is true.

Question 2

- a. Fill in the blanks [6]
- When sound travels in a medium (the particles of the medium, the source, the disturbance, the medium) travels in form of a wave.
 - The SI unit of luminous intensity is _____
 - The slope of a distance-time graph represents _____
 - The value of gravitational constant G is _____ $\text{Nm}^2 \text{kg}^{-2}$.
 - If a body moves with constant velocity, its acceleration is _____.
 - A transverse wave is composed of _____ and _____
- b. The wavelength of the waves produced on the surface of water is 30cm. If the wave Velocity is 48m/s. Calculate
- Number of waves produced in one second.
 - The time in which one wave is produced [2]
- c. A hunter fires a gun on a cliff. Sound of firing is heard 12.5 s after seeing the smoke by an observer 4 km away from the cliff. Calculate the speed of sound in the air. [2]

Question 3

- a.
 - State the composition of manganin and
 - State it's one property which helps it to be used in rheostat. [2]
- b. Neev throws a ball vertically upwards. It rises to a height 'h' and then returns to the point from where it was thrown. What is the total distance moved by the ball? Also, find its displacement [2]
- c. Two mirrors meet at right angles. A ray of light is incident on one at an angle of 45° . Draw the reflected ray from the second mirror. Also specify the angles at the required points. [2]
- 
- d. What will the weight of a body of mass 10 kg at the center of earth? Justify. [2]
- e. How is the size of a degree defined on the Celsius scale and on the Fahrenheit scale? [2]
- f. A particle is moving at a uniform speed on a circular path. Will it be an accelerated motion? Why? [2]
- g.
 - State two differences between alternate current and direct current
 - State the frequency of a.c. obtained from our mains. [3]

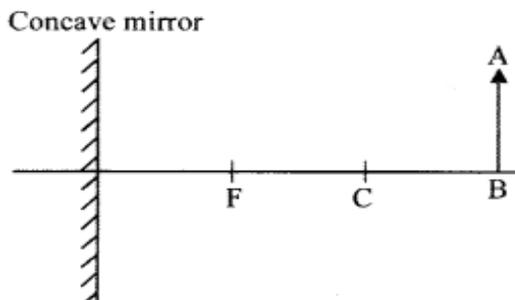
Section – II

(Attempt any **four** questions from this section)

Question 4

- a. State two differences between an electromagnet and a permanent magnet. [2]

- b. Copy and complete the following ray diagram to obtain the image of the object AB kept in front of the concave mirror.



- c. A train is moving at a velocity of 25 ms^{-1} . It is brought to rest by applying the brakes which produces a uniform retardation of 0.5 ms^{-2} . Calculate:
- The velocity of the train after 10s.
 - If the mass of the train is 20000 kg then calculate the force required to stop the train. [3]

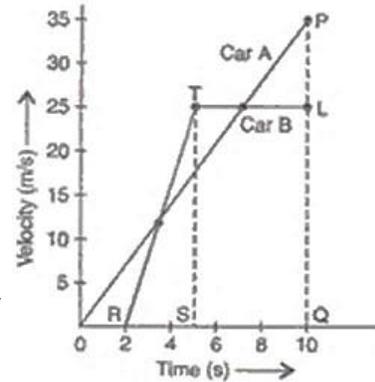
- d. What is the difference between the virtual images produced by
- plane mirror
 - concave mirror
 - convex mirror [3]

Question 5

- a. Name the particles which are responsible for the flow of current in a
- Metallic wire.
 - Electrolyte. [2]
- b. Plot a graph showing the variation of acceleration with mass [2]
- c. State two properties of ultrasound that make it useful to us. [2]
- d. Name the physical quantities of which units are
- | | | | | |
|----------|--------------|------------|----------------------|-----|
| (i) Volt | (ii) Coulomb | (iii) N/Kg | (iv) s ⁻¹ | [2] |
|----------|--------------|------------|----------------------|-----|
- e. Two simple pendulums A and B have equal lengths, but their bobs weigh 50gf and 100gf respectively. What would be the ratio of their time periods. Justify. [2]

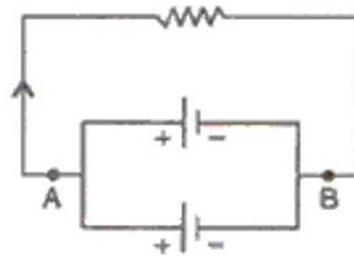
Question 6

- a. Why does a magnet suspended freely from its C.G. always come to rest along the north south direction of the earth? [2]
- b. Out of the following, which years would be leap years:
1952, 1966, 1978, 1992, 2100? [2]
- c. The length of a given second's simple pendulum is increased to 4 times its original value. What would be its new time period? [2]
- d. Given figure shows a velocity-time graph for two cars A and B starting from the same point in the same direction. Calculate the following: [4]
- Acceleration of car A.
 - Acceleration of car B between 2s - 5 s.
 - At what time intervals, both cars have same velocity
 - Which car is ahead after 10 s and how much?

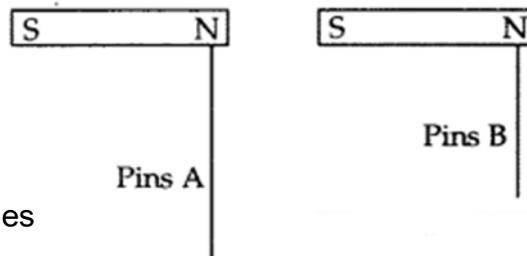


Question 7

- a. In the given circuit diagram two cells are connected in parallel. Answer the following: [3]
- What is the potential difference between points A and B if P.D of each cell is 1.5 V?
 - How does the effective voltage of the two cells connected in series compare to their arrangement in parallel?
 - Are the cells in a conventional flashlight connected in series or in parallel?



- b. The diagrams below show pins suspended from the same magnet to their maximum limit in two different cases. State, with a reason, whether the set of pins A or the set of pins B are made from soft iron. Also define the magnetic process which enables us to suspend the pins one below the other. [3]



c. A sound wave of frequency 500 Hz and wavelength 66 cm is travelling in a medium. Calculate the velocity of the wave in the medium. [2]

d. Sound waves A and B are travelling in two different media. Find which wave will be travelling faster, when
(i) A is travelling in water and B is travelling in CO₂.
(ii) A is travelling in CO₂ and B is travelling in hydrogen.
Also support your answers with reasons. [2]

Question 8

a. You are given following three bars exactly similar in size and shape:
i. A permanent magnet
ii. A bar of soft iron
iii. A bar of non-magnetic substance.
Describe how you will identify each of the bars if only a piece of thread is supplied to you as the extra piece of apparatus [3]

b. An object of height 20 cm is kept at 48 cm in front of a mirror of focal length 12 cm. If the mirror forms a virtual, diminished image of the object then calculate
(i) the distance of the image from the mirror.
(ii) its magnification. [3]

c. Study the given diagram and
(i) Identify the electrical components labelled A, B and C. and state their function
(ii) State whether the circuit given below is open or closed. [4]

