



**DELHI PUBLIC SCHOOL NEWTOWN**  
**SESSION 2021-2022**  
**FINAL TERM EXAMINATION**

## **CLASS IX**

## **SUBJECT: PHYSICS**

**FULL MARKS: 80  
TIME: 2 HOURS**

*Candidates are allowed additional 10 minutes for only reading the paper. They must NOT start writing during this time.*

**The Question paper comprises two parts. Part I is based on Multiple Choice Questions and Part II contains Subjective/ Long Answer type questions.**

*The intended marks for questions or parts of questions are given in brackets [ ].*

*This paper consists of five printed pages*

## **SECTION A(MCQ)**





**29. A body is first weighed in vacuum and then in air. The correct statement is**

- |                              |                              |
|------------------------------|------------------------------|
| (a) Both weights are same    | (b) Weight in vacuum is zero |
| (c) Weight in vacuum is more | (d) Weight in air is more    |

**30. For construction of magnetic compass, the choice of material is**

- |               |                              |
|---------------|------------------------------|
| (a) Steel     | (b) alloy of copper and zinc |
| (c) soft iron | (d) nickel                   |

## SECTION B

*(Question 1 is compulsory. Attempt any four questions from the rest of the questions)*

**Question 1**

[2+2+2+2+2]

- Mention one merit and one demerit of using solar panels.
- Locate the image position for a concave mirror when object is at centre of curvature.  
Is the size of the image magnified or diminished?
- State two merits of aneroid barometer over a Fortin's barometer.
- Define one gram force. How is it related to dyne?
- A cyclist riding along a level road suddenly stops pedaling. Why doesn't he come to rest immediately?

**Question 2**

[3+3+4=10]

- Which three properties of a medium is required for propagation of sound?
- Define Gravitational constant G. How does gravitational force obey the inverse square law? Mention the relationship between g and G.
- State any three laws of liquid pressure. Hence state Pascal's law.

**Question 3**

[4+3+3=10]

- A bullet of mass 50 g moving with a speed 100 m/s strikes a plank and comes to rest after penetrating 2 cm into the plank. Determine
  - initial and final momentum of the bullet
  - retardation offered by the plank and
  - resistive force exerted by the plank.
- Express
  - 1 micron in Å
  - 1 u in kg
  - 1 ns in s
- State how v- t graph is utilized to find the
  - distance travelled in a given time
  - displacement in a given time and
  - acceleration.

**Question 4**

[3+4+3=10]

- Bring out three distinctive features between heat and temperature.

- b) How does image position shift in a convex mirror as object is moved away from the mirror? If size of image is one-third that of object for a convex mirror of focal length 18 cm, find object position.
- c) Highlight three merits of using a secondary cell over a primary cell.

**Question 5**

[3+4+3=10]

- a) Write any three factors that influence resistance of a conductor and the manner in which resistance gets affected.
- b) Draw the magnetic field lines of a bar magnet when its N pole faces geographic north. Mark the neutral points as X and Y. Mention their significance.
- c) Which two functions does a galvanometer perform? Why does a voltmeter have high resistance?

**Question 6**

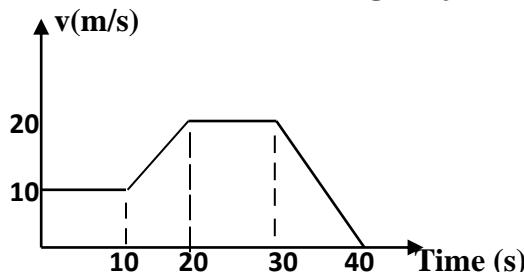
[4+3+3=10]

- a) What is an electromagnet? Write three advantages of it over a permanent magnet.
- b) What is meant by induced magnetism? How do you justify that induction precedes attraction?
- c) Define 1V potential difference across a conductor of a given length. State Ohm's law and hence define 1 ohm.

**Question 7**

[3+4+3=10]

- a) Draw a simple electric circuit with the following components.  
Cell, key, rheostat, ammeter, load and voltmeter.
- b) The velocity-time graph for a body is shown in the figure. Answer the following:
  - (i) calculate the acceleration during the time interval 10s to 20s.
  - (ii) find the distance covered in first 20s.
  - (iii) time interval when moving with zero acceleration.
  - (iv) find the retardation during the journey.



- c) Complete the following ray diagram to show the reflection by the mirrors placed perpendicular to each other.

