



Estd. 1861

BOYS' HIGH SCHOOL AND COLLEGE
FINAL TERM EXAMINATION (2024-25)
CLASS - IX
PHYSICS

Time-2hrs.

M.M.80

Section-A (40 Marks)

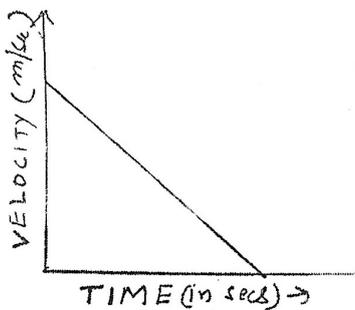
Section A is a compulsory section. Attempt all questions from this section.

Question 1:

Choose the correct answers to the questions from the given options:-

[15]

- i. The relationship between gravitational unit and S. I unit of pressure is-
 - a) $1\text{Pa} = 10\text{kgf/m}^2$
 - b) $1\text{kgf/m}^2 = 0.1\text{Pa}$
 - c) $1\text{kgf/m}^2 = 10\text{Pa}$
 - d) $1\text{kgf/m}^2 = 100\text{Pa}$
- ii. As we move deeper inside the water, the pressure-
 - a) decreases
 - b) increases
 - c) Remains same
 - d) First decreases then increases
- iii. A ship going from sea water to river water-
 - a) bends at the rear end
 - b) remains at sea level
 - c) sinks slightly
 - d) rises slightly
- iv. If the velocity of a body does not change, then its acceleration is-
 - a) Infinity
 - b) One
 - c) Zero
 - d) Between zero and one
- v. When an apple falls from an apple tree then:-
 - a) both apple and the earth repel each other
 - b) both apple and earth attract each other
 - c) Only the apple attracts the earth
 - d) Only the earth attracts the apple



- vi. Velocity time graph of an object is given above. The object has-
 - a) Uniform speed
 - b) Uniform retardation
 - c) Uniform accelerating
 - d) Uniform velocity
- vii. A cell is used to-
 - a) Limit current in the circuit
 - b) Measure current in the circuit
 - c) Prevent current in the circuit
 - d) Provide current in the circuit
- viii. A man walks 5m towards west and turns left and moves 12m. The magnitude of his displacement is-
 - a) 13m
 - b) 15m
 - c) 10m
 - d) 20m
- ix. _____ is a neutral magnet.
 - a) magnetic needle
 - b) lodestone
 - c) electromagnet
 - d) bar-magnet
- x. The space around a magnet with in which it's effect can be experienced is called-
 - a) Magnetic equator
 - b) Magnetic field
 - c) Magnetic axis
 - d) Magnetic poles

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- xi. Newton's first law of motion is also called the-
- a) Law of momentum
 - b) Law of mass
 - c) Law of inertia
 - d) Law of moments
- xii. A person can lift a very heavy stone immersed in water easily as compared to in air because-
- a) The stone experiences an upthrust equal to the weight of water displaced by it.
 - b) The stone experiences an upthrust greater than the weight of water displaced by it.
 - c) The stone experiences an upthrust lesser than the weight of water displaced by it.
 - d) None of these
- xiii. Buoyant force in liquids helps in making objects appear-
- a) Heavier
 - b) Lighter
 - c) Rising
 - d) No change
- xiv. The instrument which can accurately measure the diameter of a wire is-
- a) Vernier calliper
 - b) Meter scale
 - c) Screw gauge
 - d) All of the above
- xv. Light wave is an example of-
- a) Electromagnetic waves
 - b) Mechanical waves
 - c) Longitudinal waves
 - d) None of these

Question 2

I (a)

[3]

Define density.

A piece of steel immerses in water. If a bowl is formed from the same steel piece, then it can float in water. Why?

(b) Give any two laws of liquid pressure.

II) A body dipped into a liquid experiences an upthrust. State two factors on which upthrust of the body depends.

III) State Pascal's Law.

[2]

IV) Give two disadvantages of using water as a barometric liquid.

[2]

V) State and define the the S.I unit of potential difference.

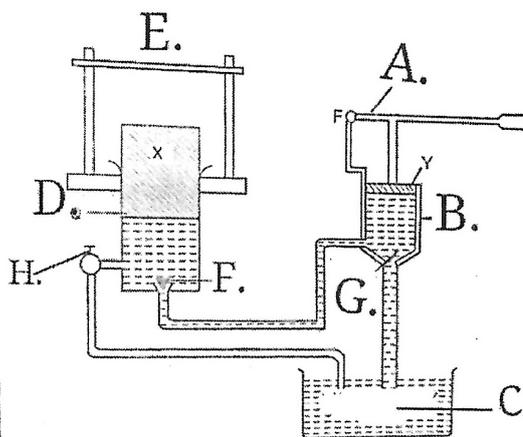
[2]

VI) Calculate the force required to produce an acceleration of 3m/sec^2 in a body of mass 0.9kg .

[2]

VII) A current of 3A flows through a conductor for 4secs . Calculate the amount of charge passing through the conductor?

[2]



Question 3

I) How does the density of material of a body determine whether it will float or sink in water?

[2]

II) What do you understand by the term least count?

Explain with an example.

[2]

III) A piece of ice floating in a glass of water melts, but the level of water in the glass does not change. Give Reason.

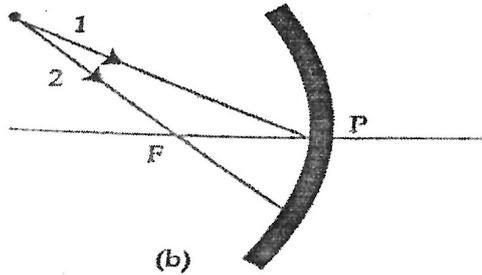
[2]

IV)

The relative density of silver is 10.8 . Find its density

[2]

V) Complete the following diagram in the given figure by drawing the reflected rays for the incident rays 1 and 2



SECTION-B

(Attempt any four questions)

Question 4:

I) Derive mathematically :

Upthrust = volume \times density \times gravity

[3]

II) What weather forecast can be made for the following changes as observed in a barometer?

[3]

- Sudden fall in the mercury level.
- Gradual increase in the mercury level
- Gradual fall in the mercury level

III) At a given place a barometer records a pressure of 80cm of mercury. If the mercury in the barometer is replaced by water, what would be the height of the water column?

Take density of mercury = $13,600\text{kg/m}^3$

and density of water = $1,000\text{kg/m}^3$

[4]

Question 5:

I) What do you mean by acceleration? How does it differ from retardation? Give its S.I. Unit.

[3]

II) State Newton's Law of Gravitation? Write an expression for the gravitational force of attraction between two bodies of masses ' m_1 ' and ' m_2 ' separated by distance ' r '

[3]

III) In the diagram given below,

Label the parts A, B, C, D, E, F, G and H

[4]

Question 6:

I) What is the effect of -

- Temperature
- Pressure
- Humidity on the speed of sound in air

[3]

II) Give the function of the following electrical component in an electrical circuit.

- Galvanometer
- Rheostat
- Voltmeter

[3]

III) In a hydraulic machine, surface area of two pistons is 10cm^2 and 300cm^2 respectively.

What maximum effort is required to lift a load of 1500kgf from the machine? Calculate the mechanical advantage of this machine?

[4]

Question 7

I) Name the two kinds of inertia? Why does a ball thrown vertically upwards in a moving train, come back to the thrower's hand?

[3]

II) State Newton's Second Law of Motion. How does it differ from the First Law of Motion?

[3]

III) A ball of mass 5gm is moving with a velocity of 25m/s on applying a constant force on ball for 1sec , it acquires a velocity of 35m/sec . CALCULATE:-

- The acceleration of the ball
- The magnitude of force applied.

[4]

Question 8

I) What is a magnetic compass? Give its two uses. [3]

II) Explain the following-

- a) A glass bottle completely filled with water and tightly closed at room temperature is likely to burst when it is kept in a freezer or refrigerator
- b) It is easier to lift a heavy stone under water than in air.
- c) A balloon filled with hydrogen rises to a certain height and then stops rising further. [3]
- d) III) Ocean waves of time period 20secs have waves velocity of 30 m/s. Calculate-
 - I. The wavelength of these waves and
 - II. The horizontal distance between a wave crest and its adjoining wave trough. [4]

Question 9

I) Differentiate between a concave and convex mirror. [3]

II) State the principle of floatation. Also give the relation between volume of submerged part of the floating body, the densities of liquid and the body.

III)

- a) 'The distance of a star from the earth is 8.33 light minutes.' What do you mean by this statement? Express the distance in metre.
- b) The size of bacteria is 1μ . Find the number of bacteria in 1m length. [2+2]
