QUARTERLY EXAMINATION-2017-2018
PHYSICS

Time : 2hrs   Class - IX Std   MM. 90

SECTION – A (50 Marks)
(All questions are compulsory)

QUESTION 1   [5x2=10]
a) What is backlash error? How will you avoid it?
b) Mention the factors affecting the pressure at a point.
c) Show graphically the variation of atmospheric pressure with altitude.
d) What length of water column is equivalent to 0.76 m of mercury column?
e) Mention two essential elements of an electric current.

QUESTION 2   [5x2=10]
a) Write SI units of: i) electric current   ii) potential difference.
b) The wavelength of light of a particular colour is 6000 Angstrom. Express it in nanometre and metre.
c) State Pascal's law of transmission of pressure. Name two applications of Pascal's law.
d) Define Geographic and Magnetic meridian.
e) What is the difference between simple pendulum and second's pendulum?

QUESTION 3   [5x2=10]
a) What are the fundamental units in SI system?
b) Name the instrument which has the least count: i) 0.1 mm   ii) 1 mm   iii) 0.01 mm
c) What do you mean by a light year? Is it a unit of time?
d) Name two units used to express small measurements of length.
e) Define electrical resistance.

QUESTION 4   [5x2=10]
a) Draw an electric circuit having ammeter, cell, key, bulb and voltmeter.
b) Give advantages and disadvantages of dry cell. *Give diff b/w primary & secondary*
c) Write down the properties of a magnet.
d) What is magnetic induction?
e) What are neutral points in a magnetic field?

QUESTION 5   [5x2=10]
a) Explain why a gas bubble released at the bottom of a lake grows in size as it rises to the surface of the lake.
b) State Archimedes' principle.
c) In a hydraulic machine, the two pistons are of area of cross section in the ratio 1: 10. What force is needed on the narrow piston to overcome a force of 200 N on the wider piston?
d) Compare the time periods of a simple pendulum at places where g = 9.8 ms^{-2} and 4.9 ms^{-2} respectively.
e) Define the terms related to simple pendulum.   i) amplitude   ii) frequency

SECTION – B (40 Marks)
(Attempt any four questions)

QUESTION 6 *State the factors affecting the upthrust.*   [3+3+4]
a) Derive the expression for upthrust of a liquid.
b) In barometer, what does the falling, rising and steady height of Mercury indicate?

c) A pendulum takes two oscillations in 6 seconds. What is its time period? Find its length, if g= 9.8 ms^{-2}.

QUESTION 7   [3+3+4]

a) Mention two merits of a simple barometer and how they are over taken by aneroid barometer.

b) A sphere of iron and another of wood, both of same radius are placed on the surface of water, state which of the two will sink and why?

c) A solid of density 5000 kg/m^3 weighs 0.5 kgf in air. It is fully immersed in water of density 1000 kg/m^3. Calculate the apparent weight of the solid in water.

QUESTION 8   [3+3+4]

a) The least count of a vernier calliper is 0.01 cm, and its zero error is -0.03 cm. While measuring the length of a rod, the main scale reading is 6.8 cm and seventh division on the vernier is in line with a marking on the main scale. Calculate the length of the rod.

b) What is the zero error of a screw gauge? What are its types and how will you do the correction?

c) Define frequency and time period of a simple pendulum. Plot a graph of T^2 against l for a simple pendulum.

QUESTION 9   [3+3+4]

a) The pitch of a screw gauge in 1 mm and there are 100 divisions on the circular head. While measuring the diameter of a wire, the main scale reads 2 mm and the 56th division is in line with the base line. Calculate the diameter of the wire. Assume that the screw gauge is free from zero error.

b) Find the number of electrons that would flow per second through the cross section of a wire when 2 A current flow in it.

c) Draw a neat labeled diagram of a dry cell and explain its working briefly. what are the factors on which electrical resistance depend. A how?

QUESTION 10   [3+3+4]

a) What is the use of the following: i) voltmeter   ii) Galvanometer   iii) Ammeter

b) Name three factors on which the strength of electromagnet depends.

c) What is altimeter? Why do the sea divers require special protective jacket?

QUESTION 11   [3+3+4]

a) Define one Coulomb. What is the charge on one electron?

b) At sea level the atmospheric pressure is 1,04x10^5 Pa, assuming g = 10 m/s^2 and density of air as uniform and equal to 1.3 kg/m^3, find the height of the atmosphere.

c) What is relative density and give its unit. The density of iron is 1.78 x 10^3 kg/m^3. What is its relative density?