LILAVATIBAI PODAR HIGH SCHOOL , ISC

PRACTICE PAPER SEMESTER – II -2021- 2022

Subject :- Physics **Grade :- 10**

Points :- 40 **Time :- 1 Hr. 30 mins**

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write for first 10 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed to write the answers.

Attempt **ALL questions** from **section A** and any **THREE** from **Section B**

The intended marks for the questions or parts of questions are given in[]

SECTION A

(Attempt ALL questions)

Question 1.

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

(WRITE CORRECT ANSWER ONLY)

(i) The loudness of sound produced by a tuning fork can be increased by [1]

increasing

a) wavelength b)pitch

c) amplitude d) frequency

(ii) The specific resistance of any known material is not affected by change in [1]

a) temperature b) pressure

c) applied magnetic field **d) dimensions**

(iii) Which of the following statement is not correct ? [1]

a) the fuse should be fitted in the live wire

b) the live wire is coloured brown

c) A 13 A fuse is the most suitable rating.

d) the yellow or green wire should be used to connect the earth pin.

THIS PAPER HAS 5 PRINTED SIDES

(iv) Lenz law give the direction of [1]

a) magnetic field b) motion of conductor

c) induced emf d) current in any electrical circuit.

(v) A wire carrying current is placed over a freely suspended magnetic needle, such that the current in the wire flows from south to north. The direction in which the north end of a freely suspended magnetic needle will point is [1]

a) North b) East **c) West** d) South

(vi) What is the mass of a solid of specific heat capacity 0.75 J g^{-1} K^{-1} will have heat capacity 93.75 J K^{-1} ? [1]

a) 115g **b) 125 g** c) 250 g d) 25 g

(vii) Two blocks of lead, one twice heavy as other are both at 50°C the ratio of the heat content of the heavier block to that of lighter block is :- [1]

a) 1 : 1 **b) 2 : 1** c) 3 : 1 d) 4 : 1

(viii) Which of the following radiations suffers maximum deflections in a magnetic field ? [1]

a) alpha particles b) beta particles

c) X – rays d) gamma rays

(ix) Two electric bulbs have resistance in the ratio 1:2 if the they are joined in series the energy consumed in them in the ratio

a) 1:2 b) 2:1 c) 4:1 d) 1:1

(x) During a β – emission from a radioactive substance an electron is ejected. This electron comes from :-

a) the outer most orbit of an atom b) the inner most orbit of an atom

c) the surface of an atom **d) the nucleus of an atom.**

SECTION B

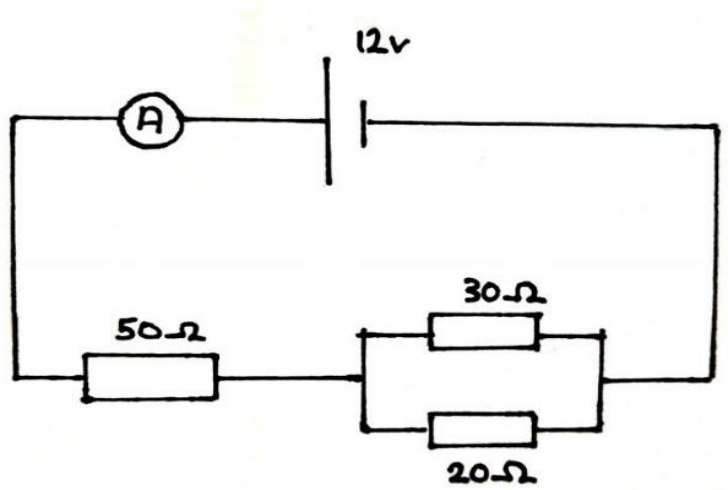
(Attempt **any 3 questions** from this section **)**

Question 2.

(i) (a) Name the phenomena involved in tuning radio set to a particular station

(b) Define the phenomenon name by you in the part (i) above [3]

(ii) Three resistors of 20 Ω , 30 Ω and 50 Ω are connected to a battery of potential difference of 12 V and negligible internal resistance as shown in the diagram below. [4]



(a) Calculate the equivalent resistance in the above circuit.

(b) Calculate the reading in the ammeter.

(iii) (a) State Ohms law. [3]

(b) Which of the two conducting wires of resistance 3 ohms and 11 ohms is thicker? Give reason for your answer.

Question 3

(i) (a) State the commercial unit of electrical energy. [3]

(b) Define the unit named by you in part (a).

(c) What is meant by the statement the current rating of fuse is 3A ?

(ii) (a) Give two characteristic properties of copper wire which make it unsuitable for use of fuse wire [2]

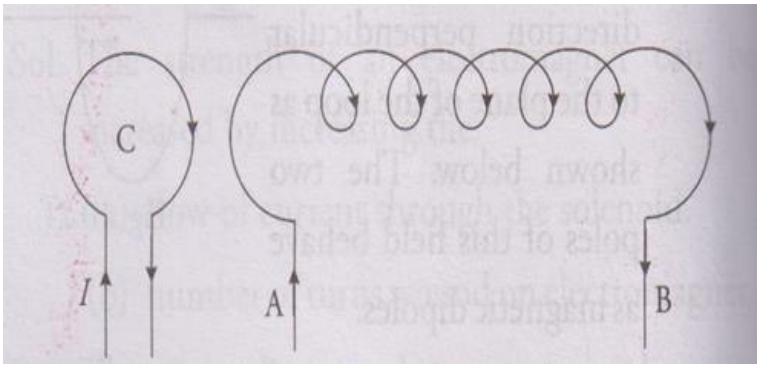
(iii) (a) Give two characteristic properties of copper wire which make it unsuitable for use of fuse wire [3]

(b) Name the material used in fuse wire.

(iv) State two reasons for connecting electrical gadgets in parallel in house . [2]

Question 4

(a) The given figure shows a circular loop C and a solenoid AB a current I is passed through them. [3]



(i) State the polarity at the face of the loop you are looking at.

(ii) State the polarity at end B of the solenoid.

(iii) What is the direction of the magnetic field at the centre of the loop ?

(b) Explain why bottled drinks are more effectively cooled by ice cubes than by iced water both at 0°C [2]

(c) Which rule would you use to find the direction of a : [3]

(i) magnetic field produced around a straight current carrying conductor?

(ii) force experienced by a current –carrying conductor place in vertically in a magnetic field?

(iii) current induced in a coil due to its rotation in a magnetic field?

(d) (i)Name the SI unit of magnetic field. [2]

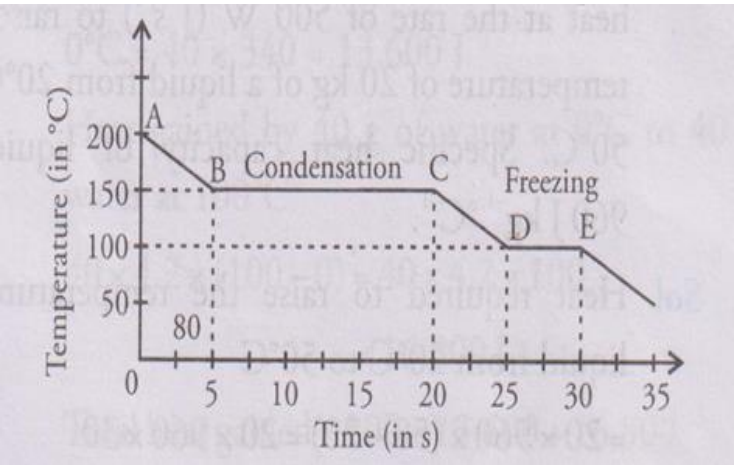
(ii) State the energy conversion taking place in electric bell.

Question 5

(a) A solid of mass 200g at 100°C is dropped into 80g of water at 10° C if the final temperature is 40°C calculate the specific hear capacity of the solid take specific hear capacity of water as $4.2Jg^{-1}\ °C^{-1}$ [3]

(b) State two precautions that must be taken while handling a radioactive substance. [2]

(c) The graph shown below represents a cooling curve for a substance being cooled from higher temperature to a lower temperature. [3]



(i) What is the boiling point of the substance?

(ii) What happens in the region DE ?

(iii) Why is the region DE shorted than the region BC ?

(d) A radioactive element emits three types of radiations α , β and γ. [2]

(i) Name the radiations which are deflected by the electric field.

(ii) Name the radiation that travels with speed of light.