Section A

Question-1

Choose the correct alternative and <u>rewrite</u> your answers.   (15m)

(Rewrite the options along with the alphabet, viz (a),(b),(c), or (d))

i.   The rod in the Gold leaf electroscope is made up of
- a) Wood
- b) Brass
- c) Glass
- d) Ebonite

ii. Sound travels in air in the form of _____
- a) Transverse waves
- b) Sine Wave
- c) Longitudinal waves
- d) None of the above

iii. The Clouds during thunderstorm gets charged due to
- a) Friction
- b) Its height
- c) Winds
- d) water

iv. The full form MCB is _____.
- a) Miniature Circuit Breaker
- b) Micro Current Breaker
- c) Main Control Block
- d) Maximum Circuit Buffer

v.   Which of the following color deviates the most when passing through a prism?
- a) Red
- b) Yellow
- c) Green
- d) Violet

vi. The speed of light in water is _____
- a) $3 \times 10^8 m\ s^{-1}$

b) $2.25 \times 10^8 m\ s^{-1}$

c) $2 \times 10^8 m\ s^{-1}$

d) $3.25 \times 10^8 m\ s^{-1}$

vii. The safe limit of loudness of audible sound is

     a) 0 to 80 dB

     b) Above 80 dB

     c) 0 to 120 dB

     d) Above 120 dB

viii. The Substance that acquires the attractive property is said to be

     a) Electrified

     b) Neutralized

     c) Plastered

     d) Heated

ix. A medium is said to be _____, if the speed of light in it decreases

     a) rarer

     b) denser

     c) vacuum

     d) moist

x. The metallic outer body of each appliance is connected to the _____

     a) Live wire

     b) Earth wire

     c) Fuse wire

     d) Neutral wire

xi. The pitch of a sound depends on _____.

     a) Number of vibrations per second

     b) Number of vibrations per minute

     c) Number of vibrations per hour

     d) Number of vibrations per quarter

xii. If the density of body is more than the density of liquid, the body_____

     a) floats

     b) sinks

     c) partially submerged

     d) none of the above

xiii.   The weight of a body floating in a liquid is _____
        a) zero
        b) 1 kg
        c) 1000 kg
        d) All of the above

xiv.   The relative density of a substance is defined as the ratio of the density of the substance to the density of _____
        a) water
        b) alcohol
        c) salt water
        d) none of the above

xv.   Fuse wire is an alloy of
        a) Lead-silver
        b) Tin-lead
        c) Copper-lead
        d) Tin-copper

Question-2   **(5m)**

Match the Following

(Rewrite the question with the correct answers)

Physical Quantities	SI Unit
i. Density	a. volts (V)
ii. Potential Difference	b. $kg\ m^{-3}$
iii. Power	c. hertz (Hz)
iv. Frequency	d. metre (m)
v. Amplitude	e. watt (W)

Question-3   **(5m)**

State whether the underlined part in the following statements makes the statement true or false
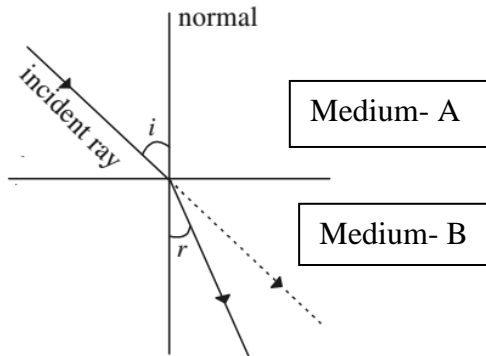
(Also Correct and rewrite the false statement, underlined part only)

  i.   Equal volumes of two different substances have <u>equal masses.</u>

  ii. The number of electrons and protons in an atom are <u>same</u>.

  iii. A Sound with <u>double</u> frequency is called a monotone.

  iv. Our body <u>allows</u> electricity to pass through it.

  v. Glass is optically <u>rarer</u> than water.

Question-4   **(5m)**
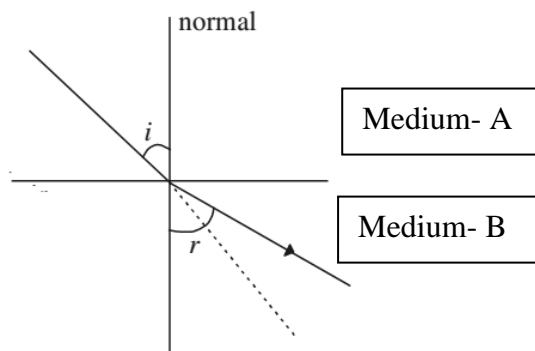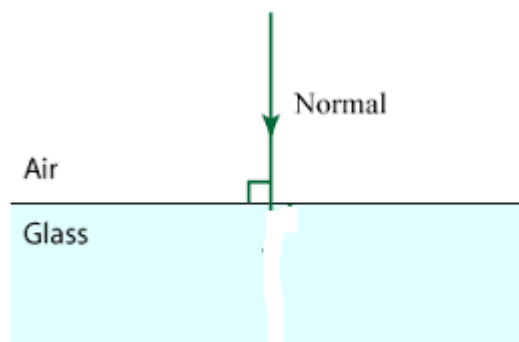
 i.   In the following figure, between Medium A and Medium B, only
      identify which one is rarer and which one is denser.   (2m)

 ii. In the following figure only identify which medium would
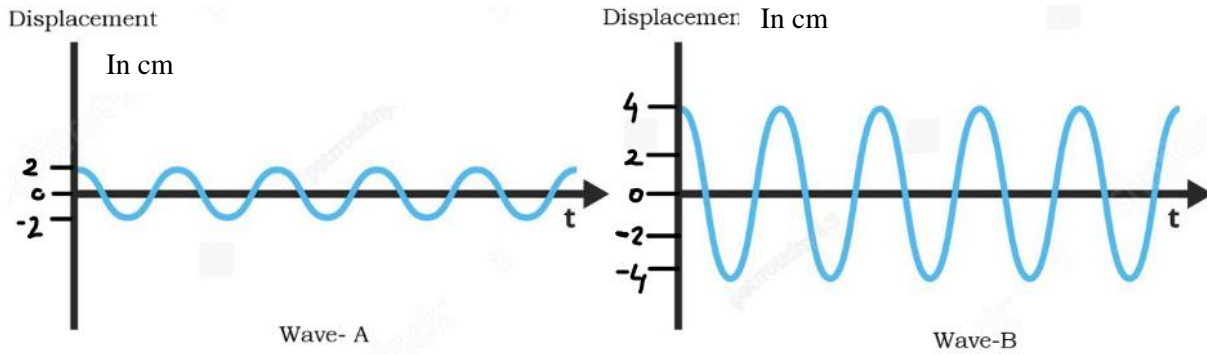   represents air and which medium would represents glass.   (2m)

 iii. Draw the refracted ray in the following diagram   (1m)
      (***Draw*** *the diagram in your answer-sheet)*

Question-5 (5m)

    i. (a) Identify which sound wave has a higher amplitude
        (b) Write down the numnerical value for amplitutde of wave A
        (*No need to draw the waveform*) (2m)

Wave- A   Wave-B

   ii. Give the relationship between loudness and amplitude of a sound wave. (1m)

  iii. If the amplitude of wave A is 4 cm and that of wave B is 5 cm, then find out the ratio of loudness of wave B to wave A, hence determine which wave is louder. (2m)

Question-6
Complete the following Table (5m)
(*No need to draw the table*)

Wire	Colour	Voltage	Purpose
Live	(b) ?	(d) ?	To carry current from source to the appliance
(a) ?	Black or Blue	0 V	(e) ?
Earth	(c) ?	0 V	To provide connection to earth

Section B
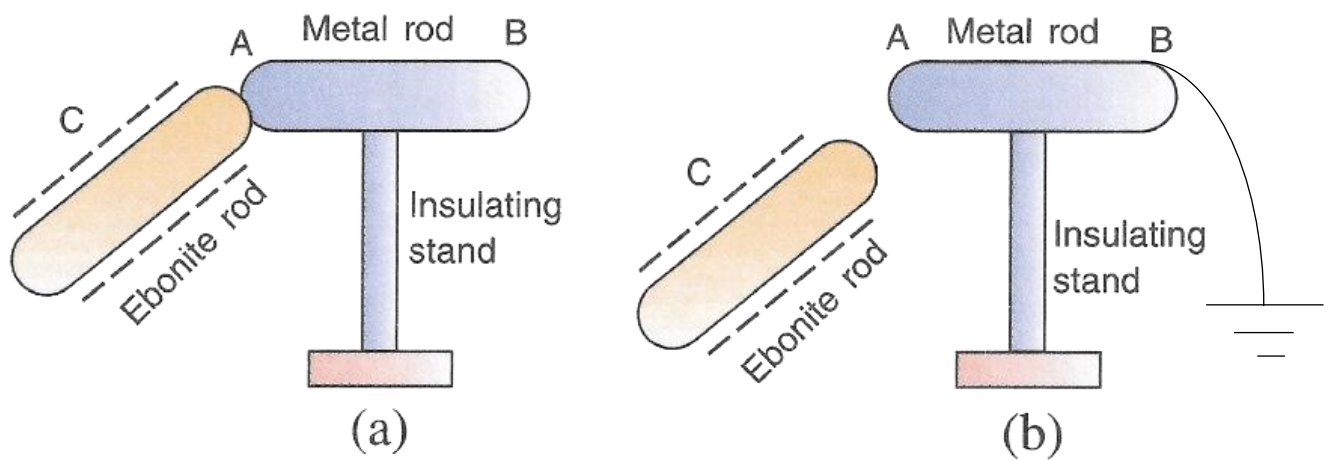### (Attempt all the question given below)

Question-7 **(10m)**

i. Define Refraction of light (1m)

ii. Give any 2 characteristics of a fuse. (2m)

iii. An object has a mass of 208 grams and occupies a volume of 10 cubic centimetre. Determine (4m)

    a) The density of the object in $kg\ m^{-3}$

    b) The relative density of the object.

iv. What will happen if a live wire comes in contact with the neutral wire? (1m)

v. State any 2 precautions to be taken while using electricity (2m)

Question-8 **(10m)**

i. Give Scientific reasons only

    a) Two people on the moon will not be able to hear each other if they do not use any hearing equipment. (2m)

    b) A small cork will float on water while an iron nail will sink? (1m)

    c) During a thunderstorm you should avoid contact with running water, why? (1m)

ii. State the name of the phenomena *(1 mark each)* (2m)

    a) White light when passed through a prism, it splits into different colours, this is called?

    b) In deserts, an inverted image of a tree can be seen, creating a misleading impression of water beneath the tree. What is this optical phenomenon called?

vi. In the figure given alongside (4m)

    a) State the method of charging the conductor and the kind of charges at the end of the metal rod AB in figure (a)

b) State the method of charging the conductor and the kind of charges at the ends A and B of the metal rod AB in figure (b)

Metal rod

Ebonite rod

Insulating stand

(a)

Metal rod

Ebonite rod

Insulating stand

(b)

Question-9 (10m)

i.   The mass of a density bottle is 25g when empty, 75g when filled with water and 50g when filled with alcohol. Find the relative density off alcohol.   (2m)

ii.   State ANY 2 characteristics to distinguish two sounds from one another. (*No need to explain*)   (2m)

iii.   What is an electroscope? Name any one type of electroscope   (2m)

iv.   Calculate the electric power of an electrical appliance of 20V in which current of 300A is passes.   (2m)

v.   Explain the working of a lightning conductor.   (2m)

Question-10 (10m)

i.   Name the following   (3m)
   a) The distance travelled by the wave in one time period of vibration of particle of medium is called?
   b) Substance with very less or no free electrons are called?
   c) Image formed when the reflected rays actually meet at a point is called as?

ii.   Explain how to change the pitch in the following instrument.   (2m)
   a) Flute
   b) Guitar

iii. Find out the time period of a wave with a frequency of 50 Hz. (2m)
iv. In the diagram given below are four charged rods A, B, C and D. Rod D is negatively charged. Find the charge on Rod A and B. Give the law to justify your answer. (3m)

Repulsion   Attraction   Repulsion

A   B   B   C   C   D

←   →   →   ←   ←   →