S 3035

Sl. No. 2900015

SSLC EXAMINATION, MARCH - 2026

PHYSICS

(English)

Time : 1½ Hours

Total Score : 40

Instructions :

- The first **15** minutes is cool-off time. Use this time to read and understand the questions and plan your answers.
- This question paper has **18** questions in sections **A, B, C, D**.
- Choices are provided for questions **7, 10, 14, 17** and **18**.
- For the questions that offer a choice, you only need to answer one of the options.

Score

SECTION - A

Write answers for all the questions from 1 to 4. Each question carries 1 score. **4x1=4**

1. What does the term "Ohmic Heating" indicate ? **1**

(a) Heating in a microwave oven.
(b) Heating in an induction cooker.
(c) Joule heating.
(d) Heating through radiation.

2. **Statement :** If the stem of a tuning fork is placed on a table, the sound heard increases. **1**

Reason : If the frequency of the forcing object and the natural frequency of the forced object are not equal, the objects are said to be in resonance. The frequency of the object undergoing resonance will increase.

(a) Both the **Statement** and **Reason** are correct.
(b) Both the **Statement** and **Reason** are incorrect.
(c) The **Statement** is correct but the **Reason** is incorrect.
(d) The **Statement** is wrong but the **Reason** is correct.

3. When passing through water droplets while forming rainbow light rays undergo : **1**

(i) Increase in speed.
(ii) Internal reflection.
(iii) Total internal reflection.
(iv) Refraction.

(a) (i) and (ii) are correct
(b) (ii) and (iii) are correct
(c) (i), (ii) and (iv) are correct
(d) (ii) and (iv) are correct

Score

4. Match the following and choose the **correct** option : 1

A. Bar magnet	B. Magnetism is permanent	C. Polarity can be changed
D. Current carrying solenoid	E. Magnetic strength can be varied	F. Polarity cannot be changed

(a) AEC and DBF (b) ABC and DEF

(c) ABF and DEC (d) AEF and DBC

SECTION - B

Answer questions from 5 to 11. Questions 7 and 10 have choices. Each question carries 2 scores.

7x2=14

5. A child standing between two large buildings claps and hears the echo from the first building in 0.2 seconds and the echo from the second building in 0.3 seconds. (Speed of sound in air = 340 m/s)

(a) What is the condition to produce an echo ? 1

(b) Calculate the distance between the two buildings. 1

6. Draw a ray diagram showing the formation of a virtual image by a convex lens. 2

7. (A) The Sun appears red or yellow or orange during sunrise and sunset. But normally the sky appears in blue colour. Describe an experiment that would be helpful in explaining the cause of these phenomena. 2

OR

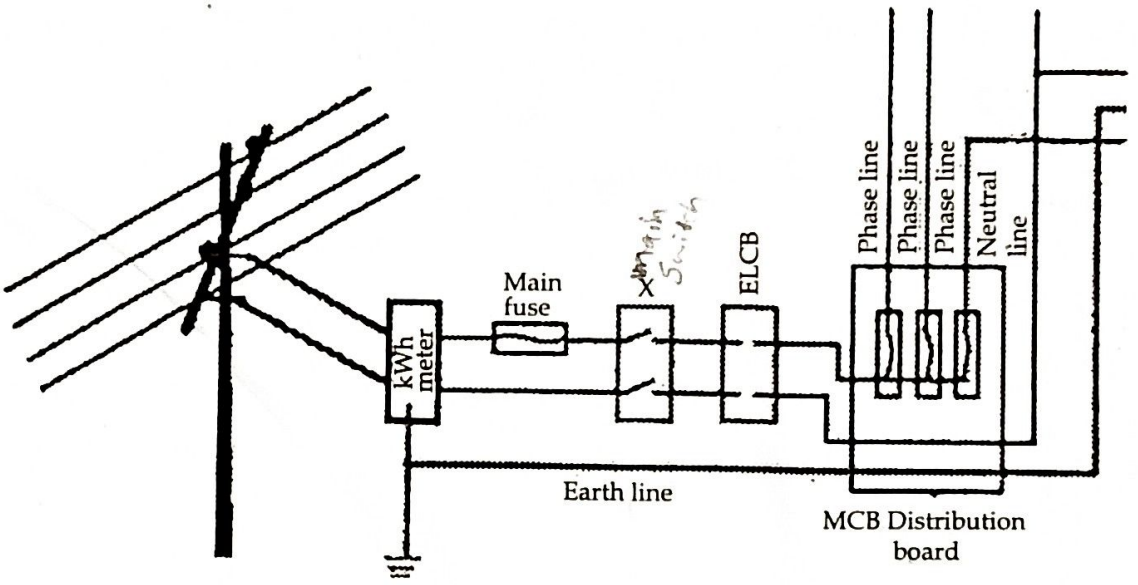
(B) In winter, path of light through the gaps of the branches of trees can be seen clearly due to scattering.

(a) By what name is the phenomenon known where the path of light becomes visible in this manner ? Through what type of medium does light travel when this occurs ? 1

(b) What does the intensity of scattering depend on ? 1

Score

8. A portion of electric circuit diagram of a household wiring is given.



(a) What does the part marked as "X" represent in the circuit ? 1

(b) Draw a circuit diagram of a branch circuit which includes one three pin socket with switch. 1

9. A load of 20000 N is lifted with a wheel and axle system that has a wheel of radius 50 cm and an axle of radius 10 cm.

(a) Calculate the mechanical advantage of this wheel and axle. 1

(b) How should a wheel and axle be designed to obtain increased mechanical advantage ? 1

10. (A) A heating appliance produces 7200000 J heat in 2 hours.

(a) What is the energy change in a heating appliance ? 1

(b) Calculate the power of this appliance. 1

OR

(B) An electric grinder with a power of 400 W is working.

(a) What is the energy change in this equipment ? 1

(b) Calculate the work done by this grinder in 1 minute. 1

11. Observe the figure showing a rule related to electricity and magnetism.

Which law does this figure represent ? State the rule. 2

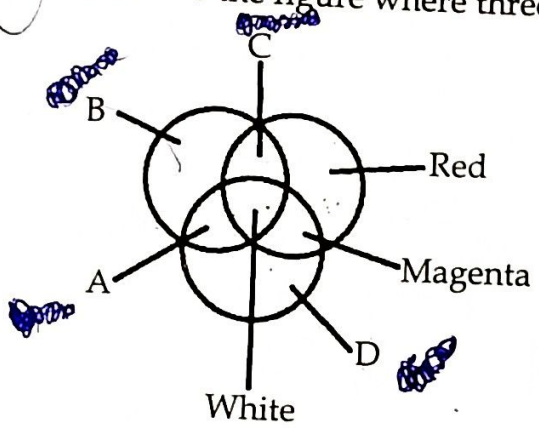
Score

SECTION - C

Answer questions from 12 to 17. Questions 14 and 17 have choices. Each question carries 3 scores.

6x3=18

12. Observe the figure where three coloured lights are made to fall on a screen.



(a) Which colours are labelled as A and D ? **1**

(b) Among the colours A, B, C and D identify the primary colours and write down the colours. **1**

(c) There is a complementary colour pair among A, B, C and D. Pick them out and write down. **1**

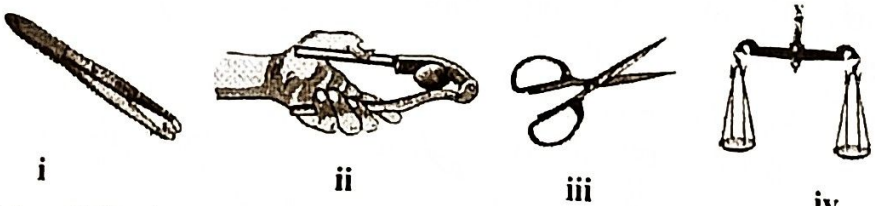
13. The resistance of a heating coil in a heating appliance operating at 200 V is 60 Ω.

(a) Which alloy is used to make heating coil of heating appliances ? **1**

(b) Calculate the amount of heat produced if electricity flows through this appliance for 5 minutes. **1**

(c) If another appliance with a resistance less than 60 Ω is operated at the same voltage for 5 minutes, will the amount of heat produced increase or decrease ? What is your justification ? **1**

14. (A) Observe the figures.



i ii iii iv

(a) Which one has the mechanical advantage less than one ? **1**

(b) State the principle of a lever. **1**

(c) The mechanical advantage of a lever is 2. If the length of its effort arm is 1 m, calculate the length of the load arm. **1**

OR

Score

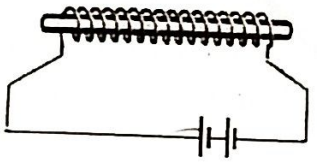
(B) Crowbar can be used as a lever.

(a) What do you mean by a lever ? 1

(b) Among Effort, Load, and Fulcrum, state which one comes in the middle for a second order lever and for a third order lever. 1

(c) A metre scale is suspended in an equilibrium position. If a weight of 60 g wt is suspended at a distance of 25 cm from the balanced point, what weight must be suspended on the other side at a distance of 30 cm to keep the metre scale in equilibrium ? 1

15. Observe the figure of a current carrying solenoid.

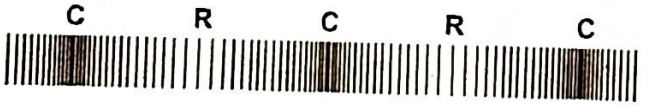


(a) What is meant by a solenoid ? 1

(b) The end connected to the positive terminal of the cell will always be the North pole of a solenoid. Is this statement correct ? Justify your answer. 1

(c) Write any two ways to increase the strength of the magnetic field formed around a current carrying solenoid. 1

16. Observe the illustration of a wave.



(a) Which type of mechanical wave is this ? 1

(b) What do the letters C and R indicate ? 1

(c) If the distance between two consecutive 'C' of the wave is 0.01 m, which is travelling with a speed of 350 m/s, will it be audible to humans ? Justify your answer by mathematical calculation. 1

17. (A) An object is placed 20 cm away from a concave lens with a focal length of 10 cm.

(a) Calculate the distance to the image from the lens. 2

(b) Write down the characteristics of the image. 1

OR

(B) A convex lens forms a virtual image at a distance of 7.5 cm away from it. Focal length of the lens is 15 cm.

(a) Calculate the distance between lens and the object. 2

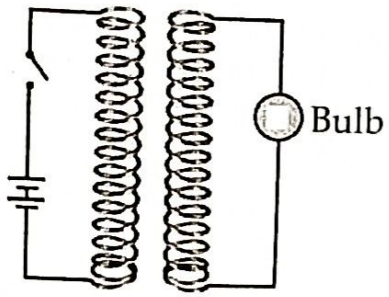
(b) Write any two instances where a convex lens is used in this manner. 1

Score

SECTION - D

Write answer for 18(A) or 18(B). Each question carries 4 scores. **1x4=4**

18. (A) Two solenoids are placed side by side. Observe the figure.



First circuit Second circuit

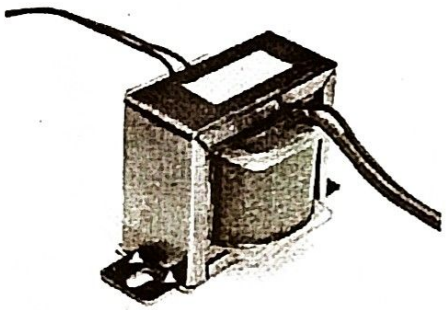
(a) The bulb in the second circuit lights up only at the moments when the switch in the first circuit is turned ON or OFF. Why does the bulb fail to glow continuously when the switch remains ON ? **1**

(b) What change should be made to the first circuit, for the bulb in the second circuit to glow continuously ? What is the phenomenon, by which current is produced in the second circuit in this manner ? Explain the phenomenon. **2**

(c) The first coil in this device has 100 turns and the second coil has 200 turns. If 400 V is to be obtained in the second coil, what voltage should be applied to the first coil ? **1**

OR

(B) Observe the figure.



(a) What is the name of this device. What is its use ? **1**

(b) When 20 V is supplied to the primary coil of this power lossless device, 100 V is obtained in the secondary coil. If a current of 1 A flows through the secondary coil, calculate the current flowing through the primary coil. **1**

(c) What are the differences in the number of turns and the thickness of the wire between the primary and secondary coils of the device, for which you just calculated the current ? **2**