S 1735

Sl. No.

SSLC EXAMINATION, MARCH - 2022

PHYSICS

(English)

Time : 1½ Hours | Total Score : 40

General Instructions to Candidates :

- There is a 'cool-off time' of **15** minutes in addition to the writing time. Use this time to get familiar with questions and to plan your answers.
- Questions with different scores are given as distinct parts.
- Read the instructions carefully before answering the questions.
- Keep in mind, the score and time while answering the questions.
- The maximum score for questions from **1** to **24** will be **40**.

Score

PART - I

A. Answer any four questions from 1 to 6. Each carries 1 score. 4x1=4

1. Find the relation between the terms in the first pair and complete the second pair. 1
   Incandescent lamp : Tungsten
   Heating coil of heating appliances : _____

2. Secondary coil of a transformer has double turns than that of its primary coil. If the voltage applied in the primary coil is 25 V, what will be the voltage in the Secondary ? 1
   (25 V, 50 V, 2 V, 12.5 V)

3. The midpoint of a lens is known as _____ . 1
   (Optic centre, Principal focus, Centre of curvature, Principal axis)

4. If one Joule of work is done to move one coulomb of charge from one point to another. What will be the potential difference between these points ? 1
   (2 V, 3 V, 1 V, 4 V)

5. Which arrangement converts the AC induced in the armature of DC generator into DC ? 1

6. When light passes through a medium it suffers partial and irregular reflection by hitting the particles of the medium. Name this phenomenon. 1

Score

B. Answer all questions from 7 to 9. Each carries 1 score. 3x1=3

7. Which is the commercial unit of electrical energy ? 1

(ampere, kilowatt, kilowatt hour, volt)

8. Which rule helps us to find the direction of motion of a current carrying conductor placed in a magnetic field ? 1

(Joule's law, Maxwell's right hand thumb rule, Fleming's left hand rule, Fleming's right hand rule)

9. The figure shows a beam of light falling on two different surfaces. 1

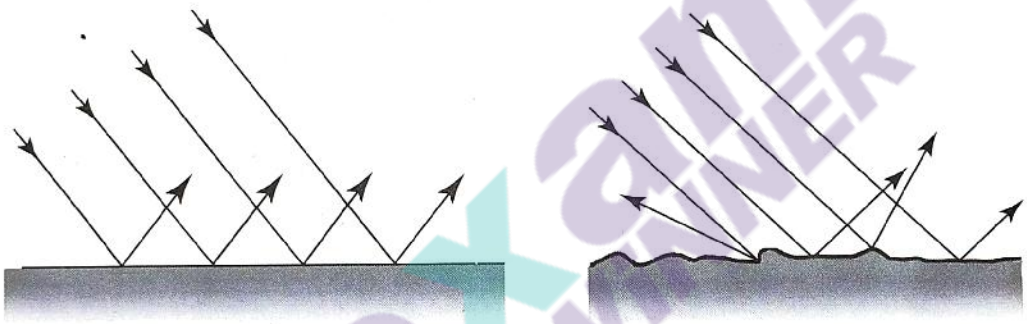


Figure - 1 Figure - 2

Which type of reflection is represented by Figure - 1 ?

PART - II

A. Answer the following question. It carries 2 score. 1x2=2

10. When an object is placed in front of a concave mirror at a distance 60 cm. An image is obtained on a screen at a distance of 30 cm from the mirror. Find focal length of the mirror. 2

B. Answer any one question from 11 to 12. Each carries 2 score. 1x2=2

11. Write any two precautions to be taken to avoid electric shock. 2

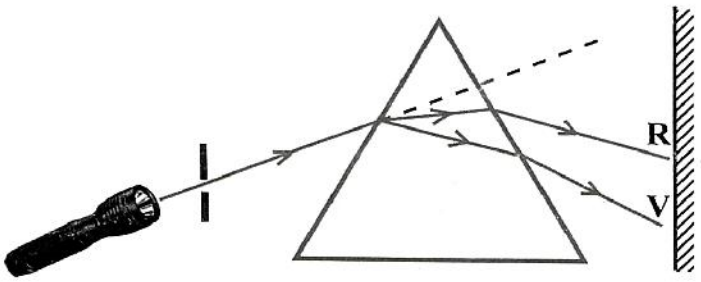
12. Why does Newton's colour disc appears to be white, when it is rotated at high speed ? Explain. 2

Score

PART - III

A. Answer any three questions from 13 to 16. Each carries 3 score. 3x3=9

13. The figure given below shows dispersion of white light when it passes through a prism.



(a) Which colour deviates more ? 1

(b) Which colour of the visible light has the longest wavelength ? 1

(c) During dispersion each colour has got different deviations. Why ? 1

14. (a) What is the energy transformation taking place in a moving coil loud speaker ? 1

(b) Explain the working of a moving coil loud speaker. 2

15. Some characteristics of step up transformers and step down transformers are given below. Select the statements suitable for step up transformers. 3

(a) Primary voltage is greater than secondary voltage.

(b) Secondary voltage is greater than primary voltage.

(c) Current in the primary coil is greater than that in the secondary coil.

(d) Current in the secondary coil is greater than that in the primary coil.

(e) Thick wires are used in the primary.

(f) Thick wires are used in the secondary.

16. When an object of height 5 cm is placed at a distance of 12 cm infront of a concave mirror, a real image was formed at a distance of 24 cm.

(a) Calculate magnification (use New Cartesian Sign Convention) 1

(b) Find the height of the image. 1

(c) Based on magnification how can we predict whether the image formed is erect or inverted. 1

B. Answer the following question. carries 3 score. 1x3=3

17. (a) Which among the following is not a discharge lamp ? 1
(Sodium Vapour lamp, Arc lamp, Fluorescent lamp, LED lamp)

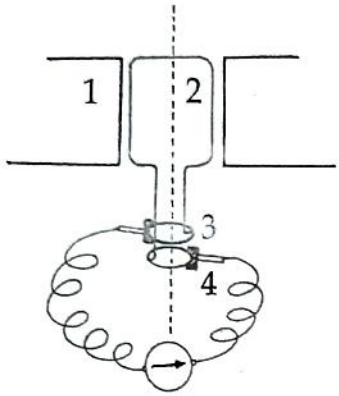
(b) Explain the working of discharge lamp. 2

Score

PART - IV

A. Answer any two questions from 18 to 20. Each carries 4 score. 2x4=8

18. Schematic diagram of a generator is given :



(a) Which type of generator is this ? (AC/DC) 1

(b) Name the parts of this generator marked as 1, 2, 3, 4 2

1 : _____

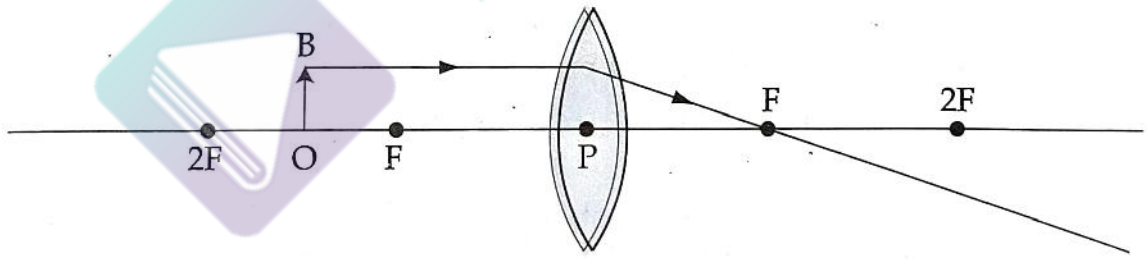
2 : _____

3 : _____

4 : _____

(c) State the working principle of this device 1

19. Analyse the figure.



An object is placed between F and 2F of a convex lens.

(a) Copy the diagram and complete to show the image formation. 2

(b) Write any two features of the image formed here. 1

(c) Where must the object be placed to get a real image of same size as that of the object. 1

20. (a) What is meant by the term "energy crisis" ? 2

(b) Write any two reasons for energy crisis. Suggest two methods to minimise it. 2

Score

B. Answer any one question from 21 to 22. Each carries 4 score. **1x4=4**

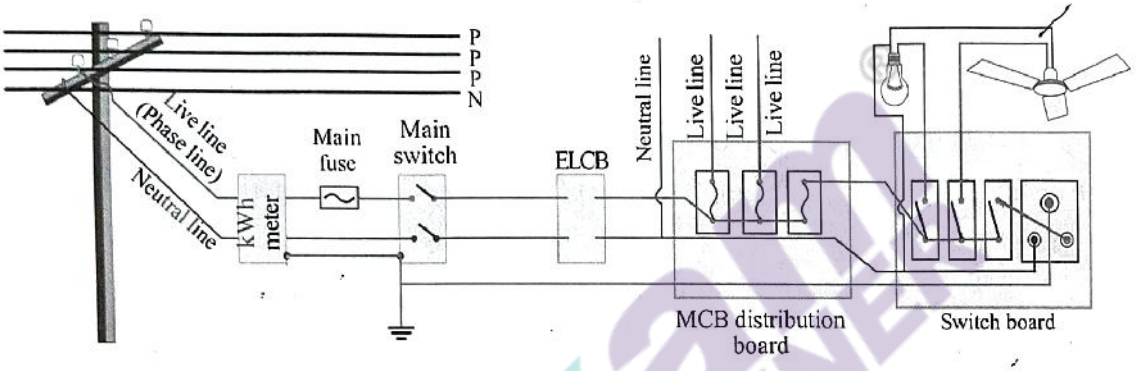
21. An incandescent lamp bears the marking 200 V, 100 W.

(a) What does 100 W indicate ? **1**

(b) What is the resistance of its filament ? **2**

(c) Write an advantage of LED lamp over incandescent lamp ? **1**

22. Observe the circuit of household electrification.



(a) Which device is used to measure the electrical energy consumed in household circuit ? **1**

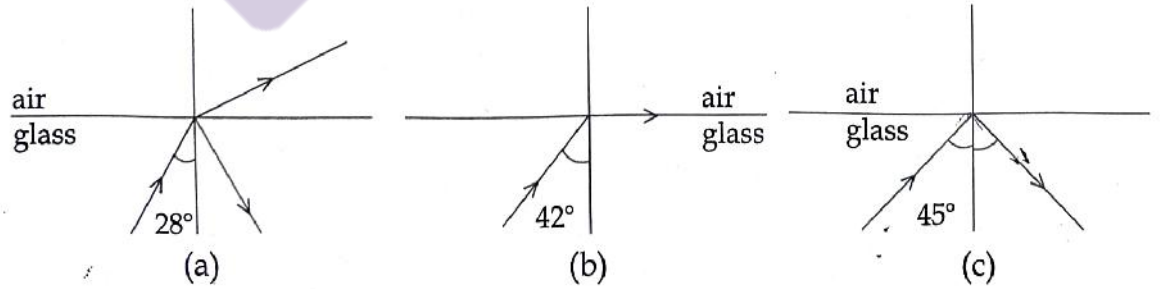
(b) Write any two advantages of connecting the devices in parallel in household circuit. **2**

(c) Write the function of ELCB. **1**

PART - V

A. Answer any one question from 23 to 24. Each carries 5 score. **1x 5=5**

23. Light rays entering into air from glass is depicted below. Observe the figures and answer the given questions.



(a) What is the critical angle of glass here ? **1**

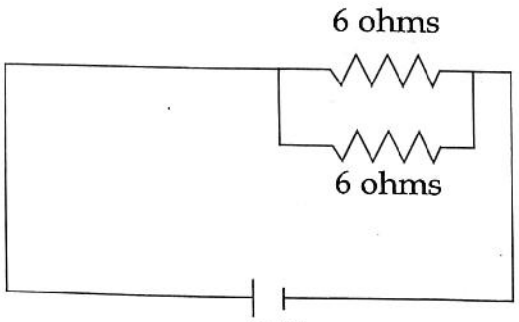
(b) Which figure represents total internal reflection ? **1**

(c) Explain total internal reflection. **2**

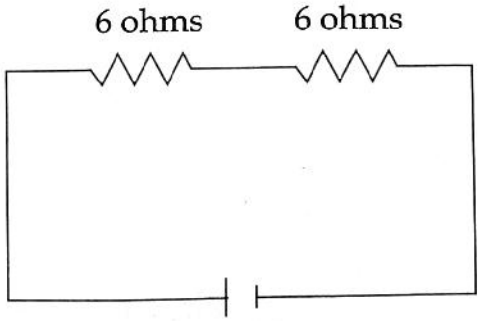
(d) Write any two instances that make use of total internal reflection. **1**

Score

24. Observe the given circuits



(A)



(B)

(a) Calculate the resultant resistance in Circuit (A) and Circuit (B). **2**

(b) What is the intensity of electric current in Circuit (A) ? **1**

(c) Calculate the heat energy produced in Circuit (B) if current flows for 30 minutes. **2**

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