

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.

PART - I

Score

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 1
the voltage applied in the primary coil is 25 V, what will be the voltage in the
Secondary ?
(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 1
another. What will be the potential difference between these points ?
(2 V, 3 V, 1 V, 4 V)
5. Which arrangement converts the AC induced in the armature of DC generator 1
into DC ?
6. When light passes through a medium it suffers partial and irregular reflection by 1
hitting the particles of the medium. Name this phenomenon.

P.T.O.

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

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

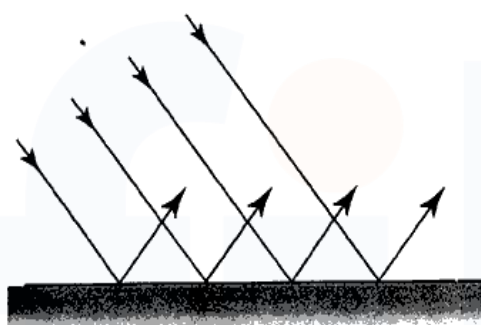


Figure - 1

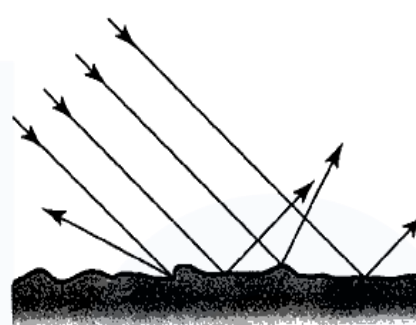


Figure - 2

Which type of reflection is represented by Figure - 1 ?

PART - II

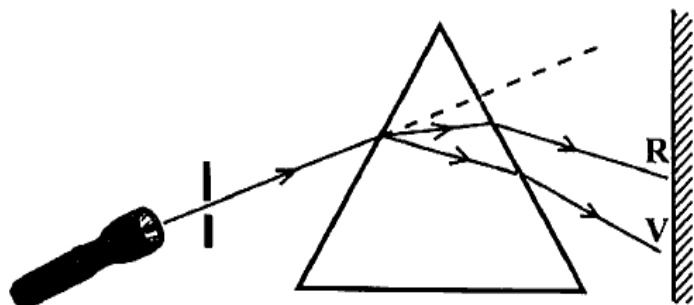
- A. Answer the following question. It carries 2 score.** 1x2=2
10. When an object is placed in front of a concave mirror at a distance 60 cm. An image is obtained on a screen at a distance of 30 cm from the mirror. Find focal length of the mirror. 2
- B. Answer any one question from 11 to 12. Each carries 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

PART - III

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

3×3=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 in front 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.

1×3=3

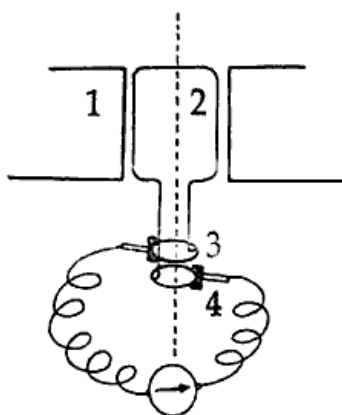
17. (a) Which among the following is not a discharge lamp ? 1
- (Sodium Vapour lamp, Arc lamp, Fluorescent lamp, LED lamp)
- (b) Explain the working of discharge lamp. 2

PART - IV

A. Answer any two questions from 18 to 20. Each carries 4 score.

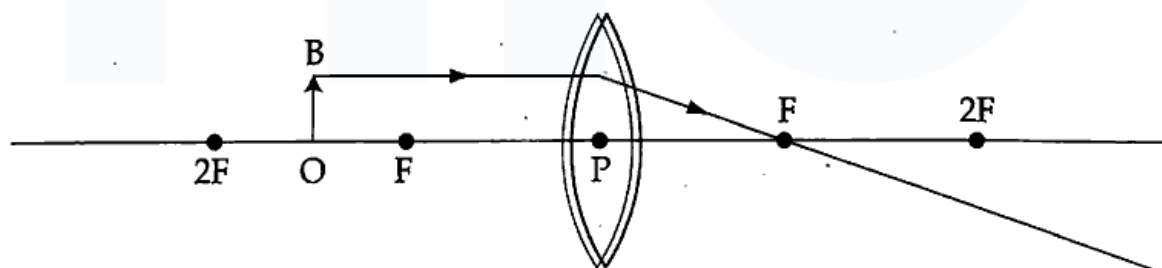
2x4=8

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.

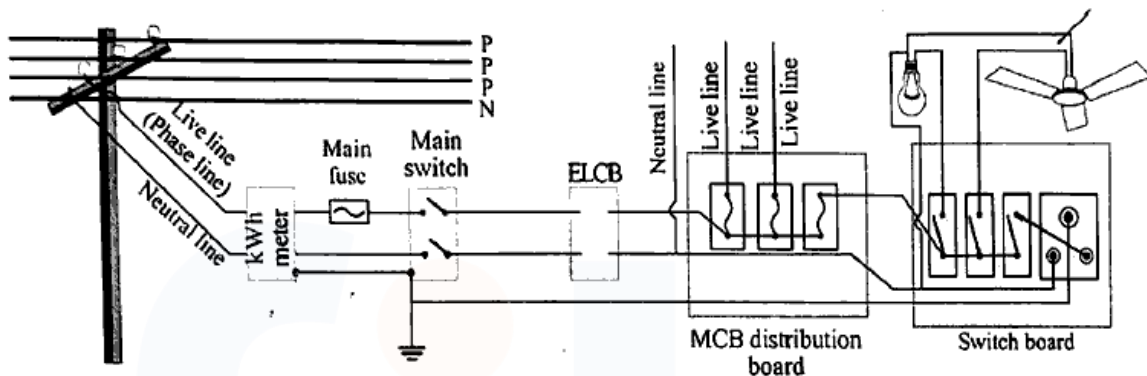
- (a) Copy the diagram and complete to show the image formation. 2
- (b) Write any two features of the image formed here. 1
- (c) Where must the object be placed to get a real image of same size as that of the object. 1
20. (a) What is meant by the term "energy crisis" ? 2
- (b) Write any two reasons for energy crisis. Suggest two methods to minimise it. 2

B. Answer any one question from 21 to 22. Each carries 4 score.

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.



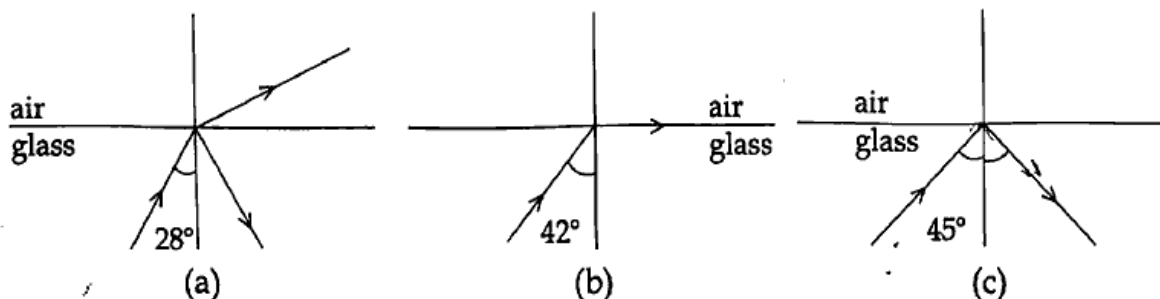
- | | |
|---|---|
| (a) Which device is used to measure the electrical energy consumed in household circuit ? | 1 |
| (b) Write any two advantages of connecting the devices in parallel in household circuit. | 2 |
| (c) Write the function of ELCB. | 1 |

PART - V

A. Answer any one question from 23 to 24. Each carries 5 score.

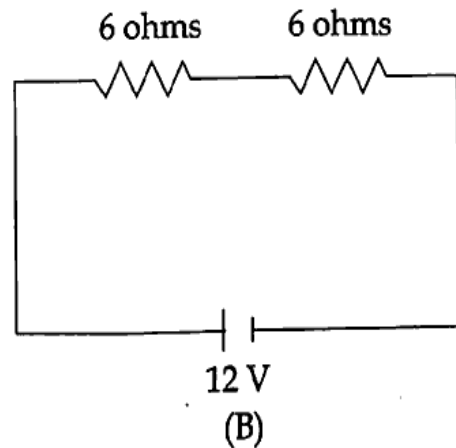
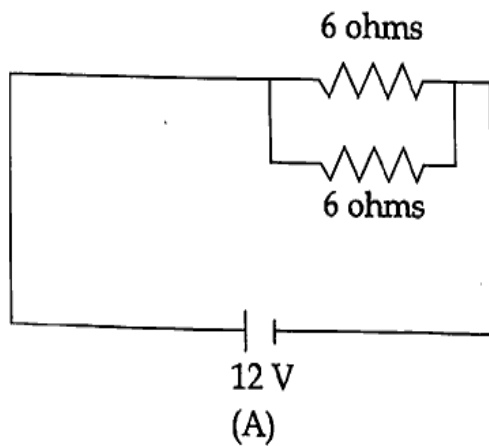
1x 5=5

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 |

24. Observe the given circuits



- | | | |
|-----|--|---|
| (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 |