

SSLC MODEL EXAMINATION, FEBRUARY - 2025**PHYSICS**

(English)

Time : 1½ Hours

Total Score : 40

Instructions :

- The first 15 minutes is cool-off time.
- You may use this time to read the questions and plan your answers.
- Answer only on the basis of instructions and questions given.
- Consider score and time while answering.

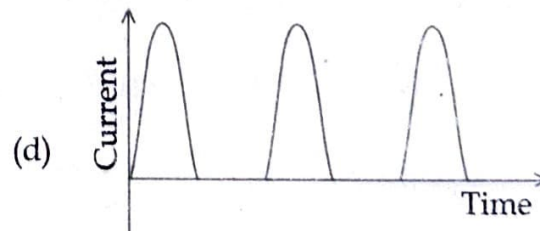
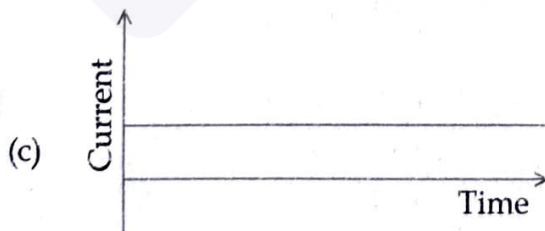
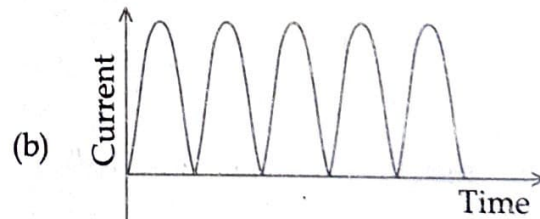
SECTION - A

Score

Answer any four questions. Each question carries 1 score.

4x1=4

1. The frequency of AC generated for distribution in our country is :
(230 Hz, 115 Hz, 50 Hz, 100 Hz) 1
2. Choose the optical phenomenon responsible for Tyndal Effect :
(Dispersion, Scattering, Reflection, Refraction) 1
3. How many images can be seen when an object is placed between the reflecting surfaces of two plane mirrors which are kept at an angle of 45° ?
(3, 5, 7, 9) 1
4. Which of the following device works on motor principle ?
(Generator, Transformer, Inductor, Moving coil loud speaker) 1
5. Choose the correct graph that represents the current induced in the armature of a DC generator. 1

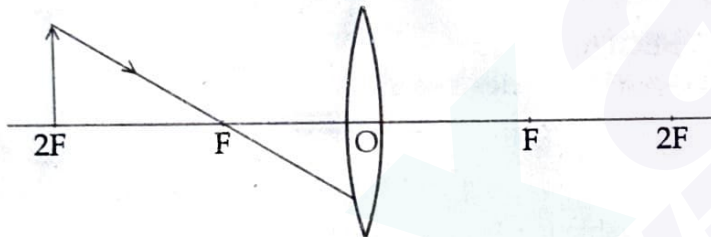


SECTION - B

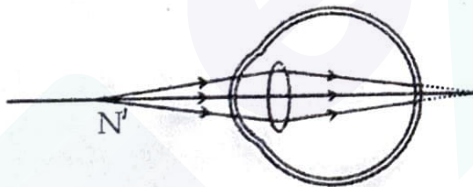
Answer any four questions. Each question carries 2 scores.

4x2=8

6. Which mirror is used as rear view mirror in vehicles ? Why ? 2
7. The marking on an electric bulb is 230 V, 100 W. What will be its power if it works on 115 V supply ? 2
8. Copy the following ray diagram and complete it to show the image formation. 2



9. Following figure shows the image formation of a nearby object in the eye.



- (a) Name the defect of the eye in this figure. 1
- (b) What type of lens is used to rectify this defect ? 1
10. Classify the energy from the following sources as green energy and brown energy. 2
(Atomic reactor, Windmill, Thermal power station, Solar cell)

Green energy	Brown energy

SECTION - C

Answer any four questions. Each question carries 3 scores.

4x3=12

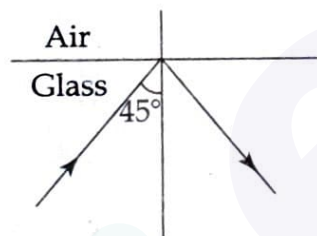
11. A transformer working on 230 V AC supplies 10 V to an electric device. The number of turns in the primary coil is 4600.

- (a) Calculate the number of turns in the secondary of this transformer. 2
(b) In which coil of this transformer is thick wire used? 1

12. Suitably match columns A, B and C. 3

A	B	C
Heating coil	Tungston	Safety fuse
Filament	Alloy of tin and lead	Electric heater
Fuse wire	Alnico	Incandescent lamp
	Nichrome	Inductor

13. Observe the ray diagram and answer the questions.



- (a) State the optical phenomenon shown in this diagram. 1
(b) Will this phenomenon take place if the ray of light is allowed to fall from water to air with the same angle of incidence? Justify your answer. 2

14. When an object of height 4 cm is placed in front of a concave mirror at a distance 30 cm away from it, an image is formed at a distance 15 cm away on the same side of the mirror.

- (a) Find the focal length of the mirror. 2
(b) Calculate the magnification of the image. 1

15. LPG is a petroleum product.

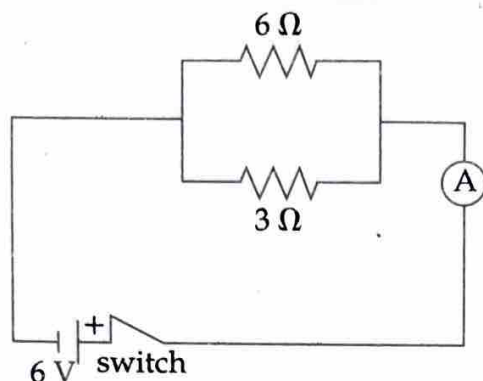
- (a) What is the main constituent of LPG? 1
(b) The marking on an LPG cylinder is "D25". What does this indicate? 1
(c) Write two precautions to be taken to avoid accidents due to LPG leakage. 1

SECTION - D

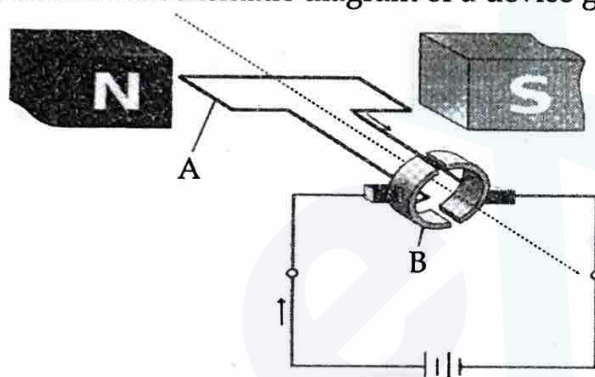
Answer any four questions. Each question carries 4 scores.

4x4=16

16. Two resistors are connected in a circuit as shown below.



- What is the effective resistance of this circuit ? 1
 - What will be the ammeter reading when current passes through the circuit ? 1
 - Calculate the heat generated in the 3Ω resistor when current passes for 3 minutes. 2
17. Observe the schematic diagram of a device given below.

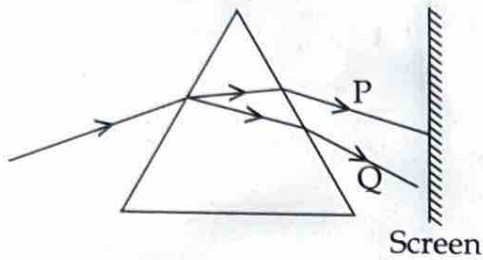


- Identify the device and write the energy change takes place in this device. 1
 - Name the parts labelled 'A' and 'B'. 1
 - State the rule that helps to find the direction of motion of the part 'A' when this device works. 1
 - What is the function of the part 'B' in the device ? 1
18. Analyse the given table and answer the questions.

Medium	Refractive index (n)
Water	1.33
Air	1
Glass	1.5
Kerosene	1.44

- Arrange the media given in the table in the ascending order of speed of light. 1
- Will a ray of light deviate towards the normal or away from the normal when it enters obliquely from water to kerosene ? Why ? 1
- Calculate the speed of light in glass. (speed of light in vacuum is 3×10^8 m/s) 2

19. The following figure shows the dispersion of sunlight through a glass prism.



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|-----|--|---|
| (a) | Identify and write the colours 'P' and 'Q'. | 1 |
| (b) | What is the reason behind the difference in the deviation of these two colours ? | 1 |
| (c) | Which colour has been given to the tail lamps of vehicles ? Why ? | 2 |
20. Electricity required for all purposes including household uses is usually generated at distant power stations.
- | | | |
|-----|---|---|
| (a) | What is meant by transmission loss ? | 1 |
| (b) | What are the steps taken to minimise this loss ? | 1 |
| (c) | To which device is the electric line reaching our home connected first ? What is the use of this device ? | 1 |
| (d) | What are the differences between the working of MCB and safety fuse used in household wiring ? | 1 |

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