Sl. No

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.

Score

SECTION - A

Answer any four questions. Each question carries 1 score. 4x1=4

1. The frequency of AC generated for distribution in our country is : 1
(230 Hz, 115 Hz, 50 Hz, 100 Hz)

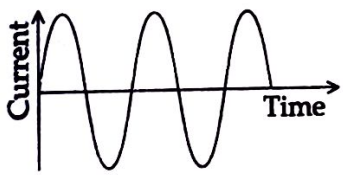
2. Choose the optical phenomenon responsible for Tyndal Effect : 1
(Dispersion, Scattering, Reflection, Refraction)

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° ? 1
(3, 5, 7, 9)

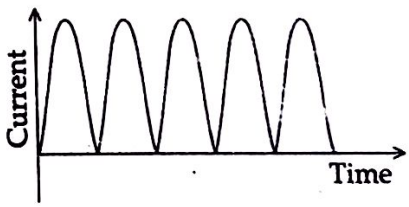
4. Which of the following device works on motor principle ? 1
(Generator, Transformer, Inductor, Moving coil loud speaker)

5. Choose the correct graph that represents the current induced in the armature of a DC generator. 1

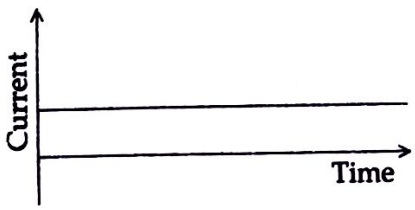
(a)



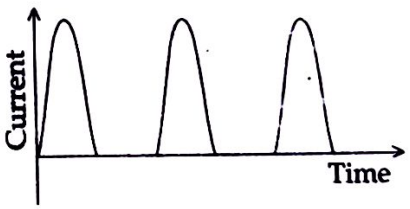
(b)



(c)



(d)



P.T.O.

Score

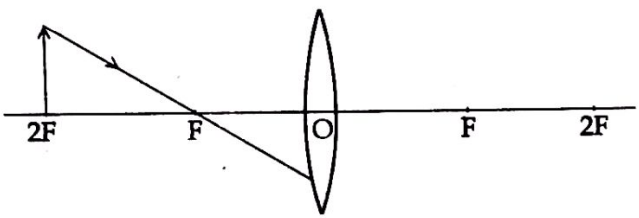
SECTION - B

Answer any four questions. Each question carries 2 scores. 4x2=8

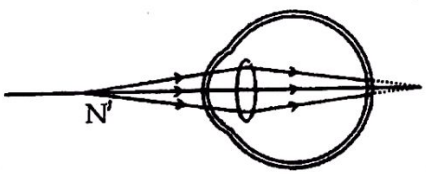
6. Which mirror is used as rear view mirror in vehicles ? Why ? 2

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

Score

SECTION - C

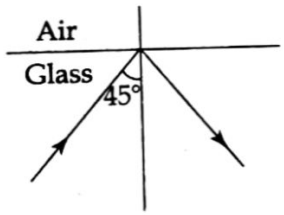
Answer any four questions. Each question carries 3 scores. 4x3=12

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

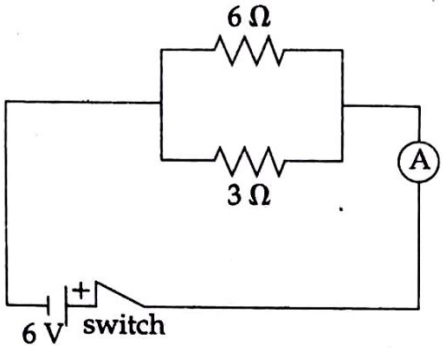
15. LPG is a petroleum product.
    (a) What is the main constituent of LPG ? 1
    (b) The marking on an LPG cylinder is "D25". What does this indicate ? 1
    (c) Write two precautions to be taken to avoid accidents due to LPG leakage. 1

Score

SECTION - D

Answer any four questions. Each question carries 4 scores. 4x4=16

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

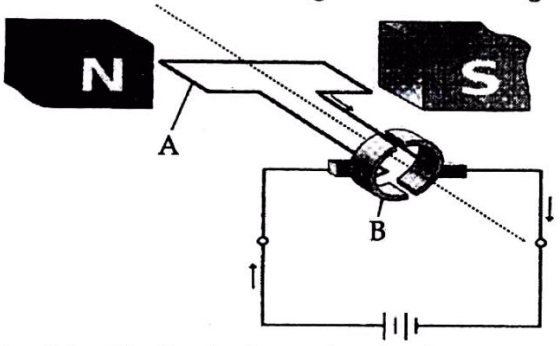


(a) What is the effective resistance of this circuit ? 1

(b) What will be the ammeter reading when current passes through the circuit ? 1

(c) Calculate the heat generated in the 3 Ω resistor when current passes for 3 minutes. 2

17. Observe the schematic diagram of a device given below.



(a) Identify the device and write the energy change takes place in this device. 1

(b) Name the parts labelled 'A' and 'B'. 1

(c) State the rule that helps to find the direction of motion of the part 'A' when this device works. 1

(d) 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

(a) Arrange the media given in the table in the ascending order of speed of light. 1

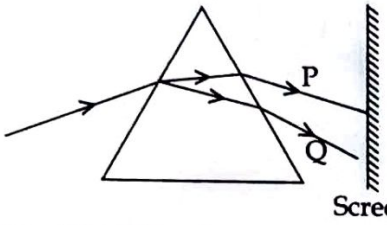
(b) Will a ray of light deviate towards the normal or away from the normal when it enters obliquely from water to kerosene ? Why ? 1

(c) Calculate the speed of light in glass. (speed of light in vacuum is 3×10^8 m/s) 2

CONTINUE.....

Score

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



(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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