

# SSLC MODEL EXAMINATION, FEBRUARY - 2023

## PHYSICS

(English)

Time : 1½ Hours

Total Score : 40

### Instructions :

- The first 15 minutes is cool-off time.
- You may use the 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

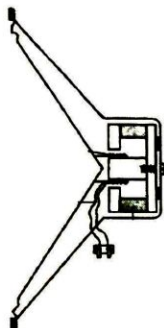
Answer any four questions. Each question carries 1 score.

1. Identify the relation from the first pair and complete the second pair suitably. 1  
Moving coil microphone : Sound energy → Electrical energy.  
Power generator : \_\_\_\_\_ → \_\_\_\_\_.
2. Which of the following is related to green energy source ? 1  
(Atomic reactor, Diesel engine, Wind mill, Thermal power station)
3. Which of the given statements is true ? 1  
(a) Long-sightedness can be rectified by using concave lens of suitable power.  
(b) Near point of a person with Long-sightedness is more than 25 cm.  
(c) Far point of a person with Near-sightedness is at infinity.  
(d) Short-sightedness can be rectified by using convex lens of suitable power.
4. Identify the mirror which always forms virtual and diminished image. 1  
(Plane mirror, Convex mirror, Concave mirror)
5. According to New Cartesian Sign Conventions, sign of focal length of a concave lens is 1  
\_\_\_\_\_.

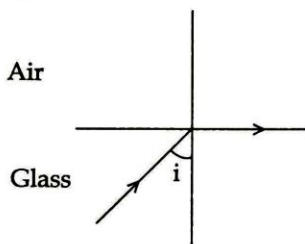
## SECTION - B

Answer any four questions. Each question carries 2 scores.

6. Calculate the power of a heating appliance having  $230 \Omega$  resistance when 2 A current flows through it. 2
7. Observe the figure :



- (a) Which part of this device converts electric energy into sound energy ? 1
- (b) What is the working principle of this device ? 1
8. A ray of light travelling from glass to air grazes through the surface of glass is shown in figure.

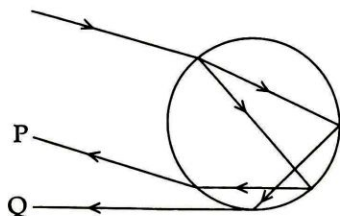


- (a) Name the angle of incidence (i) in the figure. 1
- (b) Can we reflect back the incident ray into the glass. Justify your answer. 1
9. Angle between reflecting surfaces of two plane mirrors is  $30^\circ$ .
- (a) How many images are formed when an object is placed in between them ? 1
- (b) Write any two characteristics of the image formed by a plane mirror. 1
10. The primary and secondary currents of a transformer are 2 A and 4 A respectively. The output voltage of this transformer is 100 V.
- (a) Identify the transformer. 1
- (b) Calculate the primary voltage of the transformer. 1

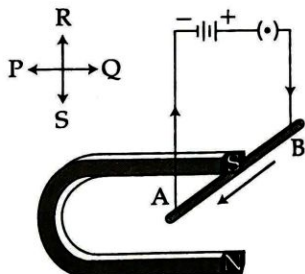
## SECTION - C

Answer any four questions. Each carries 3 scores.

11. Figure shows dispersion of a ray of light passing through a water drop in atmosphere.

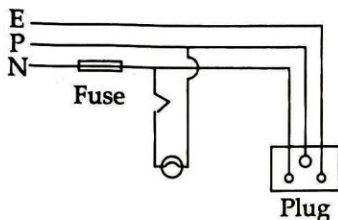


- (a) What are the phenomena of light that the ray undergoes inside the drop ? 1
- (b) Identify and write down the colours P and Q. 1
- (c) What are the colours seen in inner and outer edge of primary rainbow ? 1
12. Fuse, MCB, ELCB and RCCB are used to ensure safety in house hold electric circuits.
- (a) What is the difference between the functioning of Fuse and MCB ? 1
- (b) What is the advantage of MCB over Fuse ? 1
- (c) What is the function of ELCB and RCCB in electric circuits ? 1
13. The conductor AB which is connected to a battery is placed between the poles of a U shaped magnet perpendicular to the magnetic field lines.



- (a) In which direction the conductor deflects when the circuit is switched on ? 1
- (b) Which law helps to detect the direction of the conductor ? State the law. 2

14. A branch circuit of household electric circuit is shown in figure.

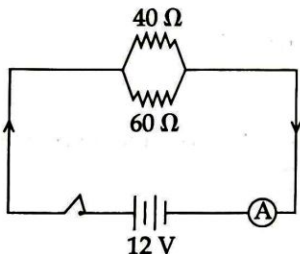


- (a) Find out any two mistakes in the circuit. 1
- (b) Draw the circuit correctly. 2
15. A lighted candle is placed 20 cm away in front of a spherical mirror. A real and inverted image is formed at the same distance.
- (a) Identify the mirror used for the experiment. 1
- (b) What is the focal length of the mirror? 1
- (c) Calculate the magnification. 1

#### SECTION - D

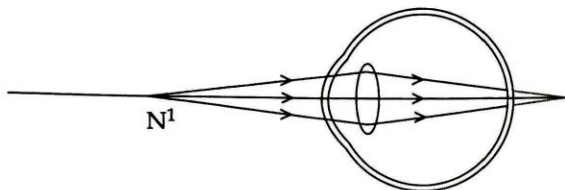
Answer any four questions. Each question carries 4 scores.

16. Observe the electric circuit in which  $40\ \Omega$  and  $60\ \Omega$  resistors are connected in parallel.

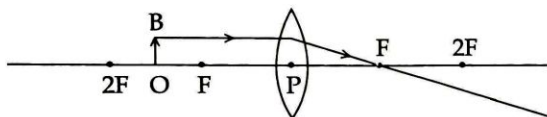


- (a) Calculate the effective resistance. 1
- (b) What is the current flowing through  $40\ \Omega$  resistor? 1
- (c) What is the heat generated in  $60\ \Omega$  resistor if current flows through it in 2 minutes? 2
17. The cooking gas that we get in cylinders is LPG.
- (a) What indicates the label 'B 23' in LPG cylinder? 1
- (b) Which is the main constituent of LPG? 1
- (c) Which substance is added in LPG to detect the leakage of the cylinder? 1
- (d) What precautions are to be taken to avoid accidents due to LPG leakage? 1

18. The figure shows the image formation in the eye of a person. Observe the figure and answer the following.



- (a) Where is the image formed ? 1  
 (in front of the retina, at retina, behind the retina)
- (b) Identify the defect of the eye shown in the figure. 1
- (c) What are the reasons for this defect ? 1
- (d) How can we rectify this defect ? 1
19. A ray diagram related to image formation is given below.



- (a) Copy and complete the diagram to show the image formation. 2
- (b) Write the characteristics of the image formed. 1
- (c) Magnification of the image is \_\_\_\_\_. 1  
 (Greater than 1, 1, Less than 1)
20. Now a days natural disasters occur frequently in Kerala. If walls of our house are wet due to flood the chance to get electric shock is more.
- (a) What are the precautions to be taken to avoid electric shock during these situations ? 1
- (b) What is to be done at first when a person is getting electric shock ? 1
- (c) What are the First aids to be given in the case of electric shock ? 2

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