

Reg. No :

W 107/E

Name :

DIET WAYANAD
S S L C PRE-MODEL EXAMINATION, MARCH 2022

PHYSICS
(ENGLISH)

Time ; 1 1/2 Hours

Maximum : 40 Scores

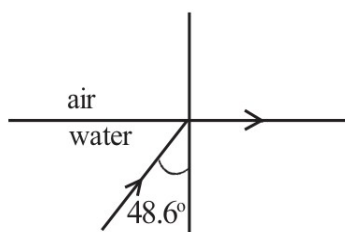
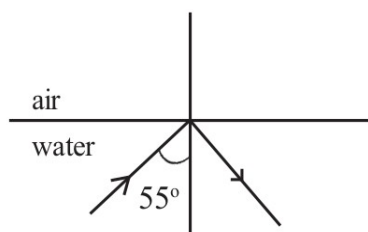
GENERAL INSTRUCTIONS :

- * The first 15 minutes is the cool off time. You may use the time to read and plan your answers.
- * Answer the questions only after reading the instructions and questions thoroughly.
- * Answer each question by considering the score.

PART I

A. Answer any four questions from 1 to 6. Each carries 1 score. (4 x 1 = 4)

1. Select the odd one out from the following. 1
(Safety fuse, Heating coil, Tungsten filament)
2. Name the working principle of moving coil loudspeaker? 1
3. The non- rotating part in a DC generator is 1
(Armature, Split ring, Graphite brush)
4. Name the mirror which always forms small images? 1
5. Observe the relation between the first pair and complete the second pair.
C N G : Methane
L P G : ,..... 1
6. Observe the figure and find out the critical angle of water. 1



B. Answer all questions from 7 to 9. Each carries 1 score. (3 x 1 = 3)

7. What is the energy change in a solar cell? 1
8. Find out the type of mirror from the following statements? 1
 - * Distance of object and image from the mirror are equal.
 - * Image is same size as that of the object.
 - * Image is virtual.
9. Find out the defect of eye related to the following statement. 1
 - * For elderly people the distance to the near point is greater than 25 cm.
(Long -sightedness, short-sightedness, Presbyopia)

PART II

A. Answer the following question. Carries 2 scores. (1 x 2 = 2)

10. Write any two factors affecting the strength of the magnetic field of a solenoid carrying current. 2

B. Answer any one question from 11 to 12. Each carries 2 scores. (1 x 2 = 2)

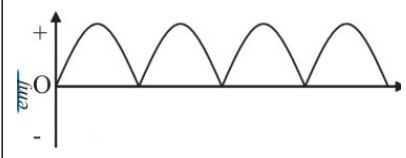
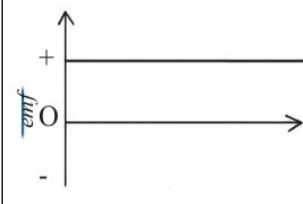
11. Write any four consequences of light pollution. 2

12. A grinder of power 750 W works for 2 hours. Calculate the energy consumed 2

PART III

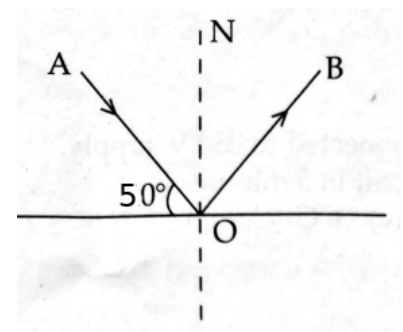
A. Answer any three questions from 13 to 16. Each carries 3 scores. (3 x 3 = 9)

13. complete the given below table 3

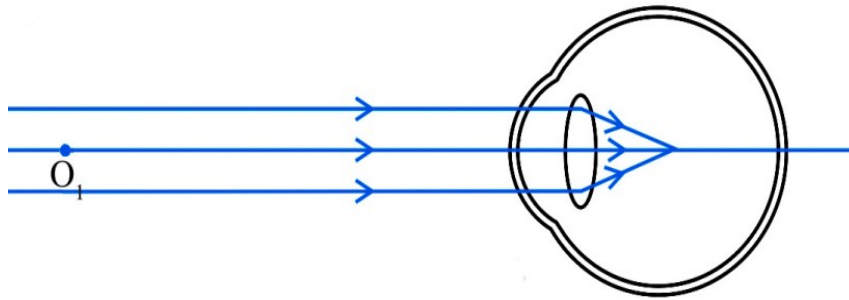
| Source of emf | Graphical representation | peculiarities of emf |
|---------------|--|---|
| AC Generator | (a)..... | *Direction changes continuously *emf increases and decreases |
| (b)..... |  | *Direction does not changes *emf increases and decreases |
| Battery |  | (c) |

14. Analyse the given below figure & answer the following questions

- (a) Find out the angle of reflection. 1
- (b) In the figure which is the incident ray? 1
- (c) What is the relation between the angle of incidence and the angle of reflection? 1



15. Observe the figure and answer the questions



- (a) Which is the defect of eye shown in the figure? 1
 (b) What are the reasons for this defect? 1
 (c) What is its remedy? 1

16. Classify the energy from the following sources as green energy and brown energy.

- a. Solar cell , b. Diesel engine, c. Atomic reactor, d. Wind mills, e. Tidal energy, f. Thermal power stations

| Green energy | Brown energy |
|--------------|--------------|
| | |

B. Answer the following question. Carries 3 scores. (1 x 3 = 3)

17. Absolute refractive index of two mediums are given below. Answer the following questions

(Glass=1.5, Water=1.33)

- (a) Which medium has greater optical density? 1
 (b) In which medium light travels with greater speed? 1
 (c) Calculate the speed of light in glass (Speed of light in vacuum /Air = 3×10^8 m/s) 1

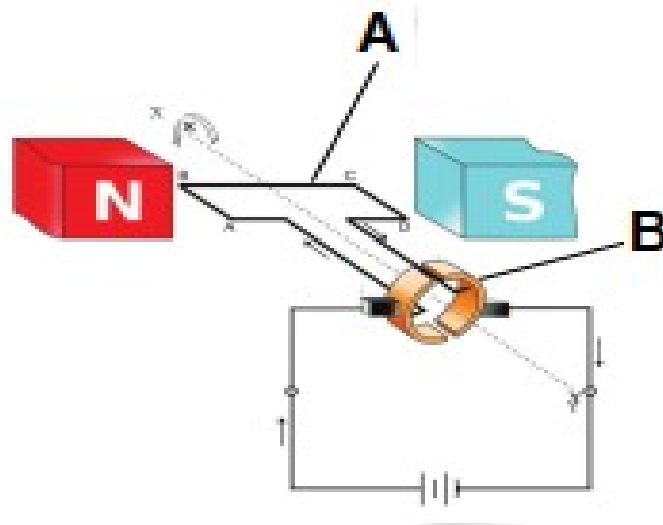
PART IV

A. Answer any two questions from 18 to 20. Each carries 4 scores. (2 x 4 = 8)

18. Resistance of a heating device is 115Ω , if this device is connected to 230 V supply.

- a) Calculate the heat energy produced by it in 20 minutes. 2
 b) Calculate the current flowing through this circuit. 2

19. Observe the figure of a DC motor.



- a) Write the name of the parts labelled as A and B 1
- b) In which direction does the armature rotate when electricity passes through the armature as shown in the picture? (In the clockwise direction, in the anticlockwise direction) 1
- c) Write the function of split ring commutator used in this generator? 1
- d) What are the changes to be made so as to convert this device into an AC generator? 1

20. When an object is placed in front of a concave mirror at a distance 60 cm, an image is obtained on the same side at a distance of 40 cm from the mirror.

- a) Write the values of u and v according to New cartesian sign convention. 1
- b) Find the focal length of the mirror. 2
- c) Find the magnification. 1

B. Answer any one question from 21 to 22. Each carries 4 scores. (1 x 4 = 4)

21. A major part of the electrical energy supplied to an incandescent lamp is lost as heat.

- a) Which material is used as filament? 1
- b) Write any two properties of this material? 2
- c) Why is the bulb is evacuated? 1

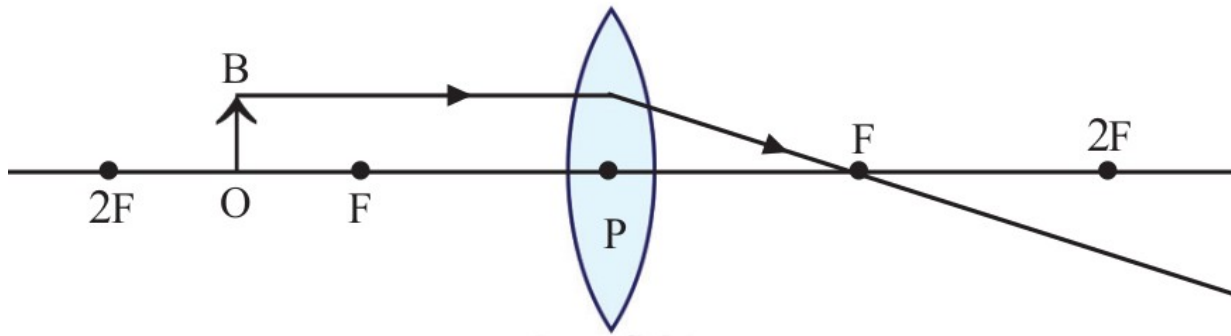
22. Based on the calorific value, Hydrogen can be considered as the most efficient fuel.

- a) What is Calorific value? 1
- b) Why is hydrogen not used as a domestic fuel? 1
- c) Write any two properties that a good fuel must have? 2

PART V

A. Answer any one question from 23 to 24. Each carries 5 scores. (1 x 5 = 5)

23. Observe the ray diagram given below.



- a) Redraw the diagram and complete it to get the image. 2
- b) Write any two characteristics of the image obtained. 2
- c) In which name the mid point of a lens is known as? 1

24. Observe the figure and answer the following questions.

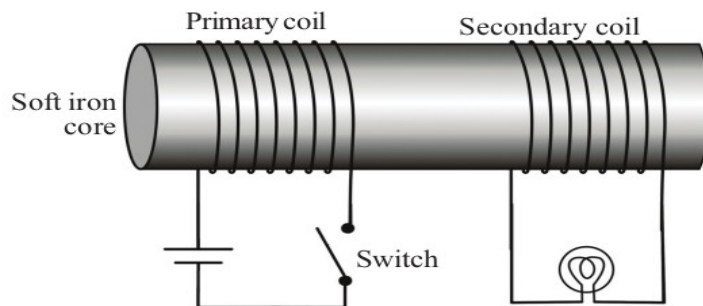


Fig. 3.8

- a. Turn on & turn off the switch continuously. What do you observe? 1
- b. If the switch is kept in the on position what do you observe? 1
- c. Can you suggest a method by which change can be brought in magnetic flux without switching on and off continuously? 1
- d. What is this phenomenon? Explain. 2