DISTRICT INSTITUTE OF EDUCATION AND TRAINING THIRUVANANTHAPURAM

EVALUATION TOOL FOR CLASS X – 2022 FEBRUARY

PHYSICS

Time : 1½ Hr. Total Score : 40

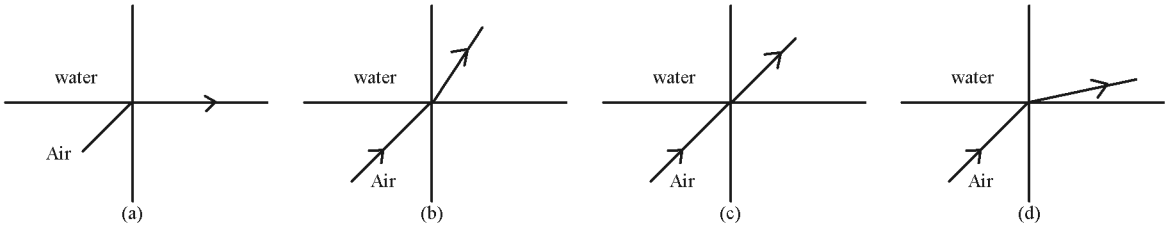
General Instructions

- 15 minute is given as cool-off time. This time is to be used to read and understand the questions well.
- If a question contains choices, the required number of questions need to be answered.
- The instructions and the marks for each questions are given along with the questions.

PART I

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

1. In relation with refraction. Find out the correct figure?



2. Which is the main component of LPG?
3. Which of the following relation indicate Joules Law.
   ($H = I^2R$, $H = I^2Rt$, $H = V^2Rt$)
4. Write the energy change in electric motor.
5. Observe the relation in the first pair and complete the second pair.
   Electric Oven : Heating effect
   Electric Mixie : .....
6. What kind of lens are we using to rectify long - sightedness?

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

7. Write the expansion of ELCB.
8. The angle between two plane mirror is 60°. How many images will be formed there?
9. Hydrogen is a fuel of high calorific value. But it is not used as domestic fuel. Why.

PART II

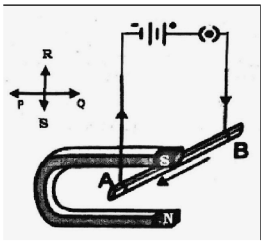
A. Answer the following question. 2 score. **(1 × 2 = 2)**

10. Categorize the following relations appropriately as Step up transformer and Stepdown transformer.

    a) $V_s > V_p$ b) $I_s > I_p$ c) $V_s < V_p$ d) $I_p > I_s$

B. Answer any 1 question from 11 to 12. (2 score) **(1 × 2 = 2)**

11. Observe the picture given below and answer the following questions.



a) In which direction conductor AB moves when the switch is on?

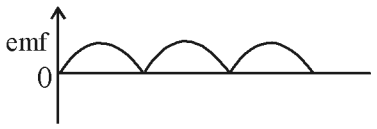
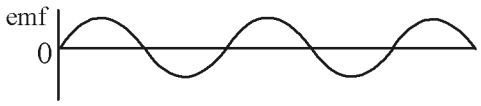
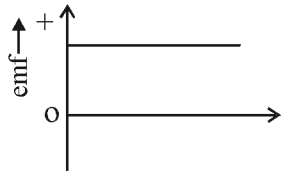
b) Which rule help you to find the direction of movement of the conductor?

12. Magnification of the image formed by a convex lens is –4. Find out the height of image formed, when an object of 5 cm height is placed in front of the lens?

PART III

A. Answer any 3 of the following questions from 13 to 16. Each carries 3 score. **(3 ×3 = 9)**

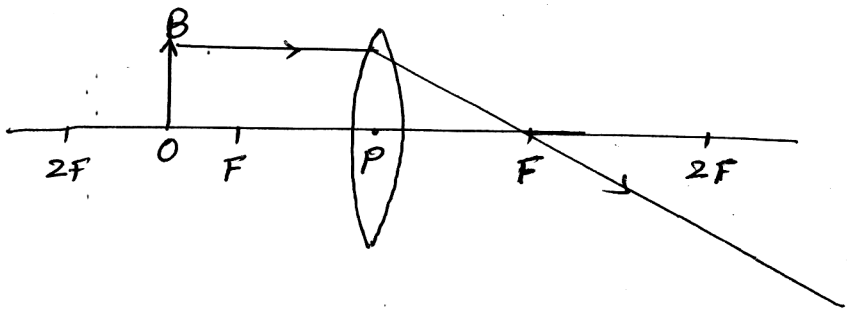
13. Match the A, B columns suitably.

A	**B**
Source	**Graph**
AC generator	
Battery	
DC generator	

14. Calssify the following into green energy and brown energy.

(Atomic reactor, solar cell, energy from waves, thermal power station, windmill, Diesel engine)

15. Complete the following figure and write any two characteristics of the image formed.



16. A mirror forms a diminished virtual image of an object.

    a. Which type of mirror is this?

    b. Write any two uses of this mirror?

A. Answer the following question. 3 score. **(1 × 3 = 3)**

17. Focal length of a concave lens is 20 cm. Image of an object placed in front of the lens can be seen at a distance of 12 cm from the lens. Calculate the distance of the object from the lens.

PART IV

A. Answer any 2 questions from 18 to 20. Each carries 4 score. **(2 × 4 = 8)**

18. Safety fuse is a device that works on the heating effect of electric current.

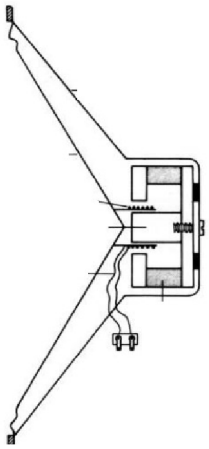
    a) Which alloy is used to make fuse wire?

    b) What are the characteristics of this alloy?

    c) In which mode is the fuse wire connected in the circuit?

    d) What are the situations in which excess current flows through a circuit so as to melt the fuse wire?

19. Observe the device in the figure.



    a) Identify the device.

    b) What is the energy change take place in this device?

    c) What is the working principle of this device?

    d) Explain the working of this device.

20. When an object in placed in front of a mirror at a distance 20cm, an inverted image is formed at the same position of the object

    a) Identify which type of mirror in this

    b) What will be the size of the image formed.

    c) What will be the focal length of the mirror

    d) Find the magnification of the image formed

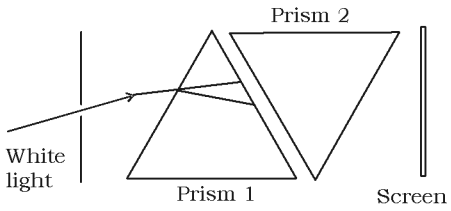
B. Answer any 1 question from 21 to 22. 4 score. **(1 × 4 = 4)**

21. The bulbs in which the filament becomes white hot and gives out light are known as incandescent lamps.

    a) What metal in used to make filament in incandescent lamps. write the characteristic of this metal.

    b) Why the bulb of incandescent lamps is filled with inert gas or mitrogen.

22. a) Complete the figure.



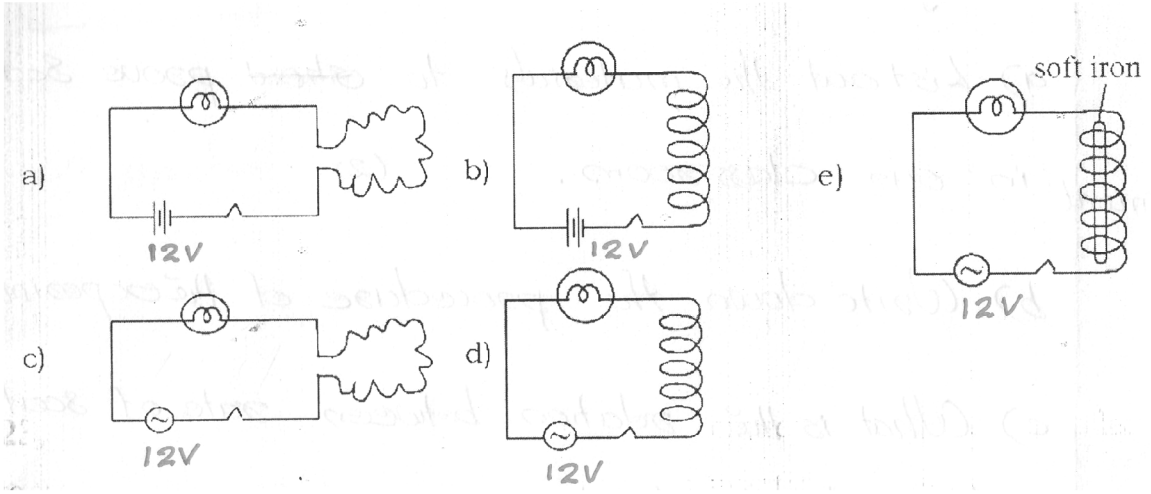
    b) What are the colours that come out of the first prism?

    c) Which light is obtained on the screen?

PART V

A. Answer any 1 question from 23 to 24. 5 score. **(1 × 5 = 5)**

23. Copper wires of same length and thickness are connected as coiled or not coiled form to below five circuits. Observe the circuits and answer the following questions.



    a) Which of the following bulbs have minimum light intensity?

    b) Name the phenomenon due to which the intensity of the bulb decreases?

    c) Define the phenomenon

    d) How does the soft iron core in the circuit (e) affect the flow of current in the circuit

24. We get light in our class rooms and homes during day time due to scattering of sunlight.

    a) List out the materials to prove Scattering experiment in our classroom.

    b) Write down the procedure of the experiment

    c) What is the relation between rate of scattering and wavelength of rays.