KANNUR DISTRICT PANCHAYAT
DIET KANNUR
MUKULAM SSLC MODEL EXAMINATION 2021
PHYSICS

Time: 1½ Hours **Total Score: 40**

SET-A

GENERAL INSRTUCTIONS:

- **The first 20 minutes is the cool off time.**
- **You may use the time to read and plan your answers.**
- **There are questions of 80 score in total. Out of these the most written 40 score questions/sub-questions will be considered.**
- **You do not have to answer all the questions. But the maximum number of known answers can be written in a timely manner.**
- **Write answers that you can write with confidence first.**
- **The question number and the sub-question number should be clearly written.**

SECTION A
(Questions 1 to 8 carries 1 score each)

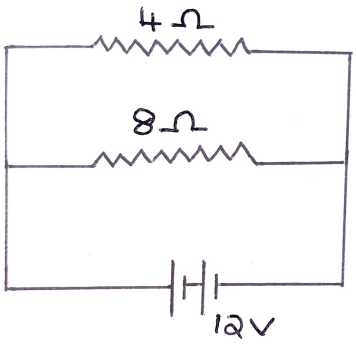
1. Identify the relation between the terms in the first pair and fill in the second pair
Moving coil microphone: Electro magnetic induction
Moving coil loudspeaker : .....
2.Which is the most abundant fossil fuel found in the earth?
3.Which phenomenon of light causes the sky to appear blue?
4.Among the statements given below which is the correct statement regarding fuse wire?
- High resistivity
- Low melting point
- High melting point

5. In order to get a real image of same size using a concave mirror where should the object be placed?
(Beyond C, Between C and F , At C , Between F and P)
6. What is the effective resistance when 10 resistors of 5 Ω each are connected in series.
(5 Ω ,10 Ω , 0.5 Ω ,50 Ω)
7.What is the critical angle of water ?
(40^0, 46.8^0, 48.6^0 ,42^0)
8.What is the power in dioptre of a convex lens of focal length 500 cm ?

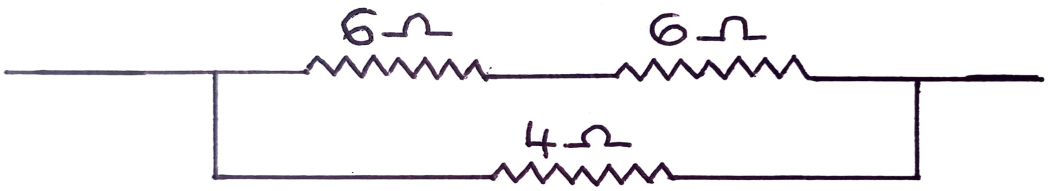
SECTION B
(Questions 9 to 20 carries 2 score each)

9. All of you would have seen a rainbow.
a) How is rainbow formed?
b) Where will be the Sun when the rainbow is seen in the West?
10. The statements about the working of a moving coil loudspeaker are given below. Arrange them in the proper order.
- The voice coil moves to and fro in accordance with the electrical pulses.
- The diaphragm vibrate there by reproducing sound.
- The electrical pulses are sent through the voice coil
- The electrical pulses from a microphone are strengthened using an amplifier.

11. What is energy crisis? Write any two methods to reduce energy crisis?
12. Observe the circuit diagram given below.



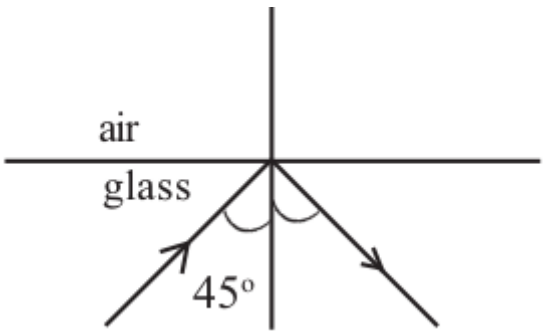
a) What is the potential difference across the 8 Ω resistor?
b) What is the current through the 4 Ω resistor?
13. Newton's colour disc appears white when it is rotated fast due to persistence of vision. Write any two other examples of persistence of vision.
14.Why red colour is used in signal lamps?
15.Calculate the effective resistance of the circuit given below.



16.Classify the following energy sources as green energy and brown energy?
solar energy, natural gas, energy from bio mass, nuclear energy
17. A few statements related to Near-sightedness and Far-sightedness are given below. Tabulate them suitably.

- Distant objects can be seen clearly, but may not be able to see nearby objects clearly.
- Nearby objects can be seen clearly, but may not be able to see distant objects clearly.
- This defect can be overcome by using concave lens of suitable power.
- This defect can be overcome by using convex lens of suitable power.

18.Observe the figure.



a) Why does total internal reflection of light happen when it enters from glass to air?
b) Write one practical application of total internal reflection in our day to day life.
19. A few statements related to Step up transformer and Step down transformer are given below. Tabulate them suitably.

- Thick wires are used in the secondary.
- Thick wires are used in the primary.
- Secondary voltage is greater than primary voltage.
- Primary voltage is greater than secondary voltage.

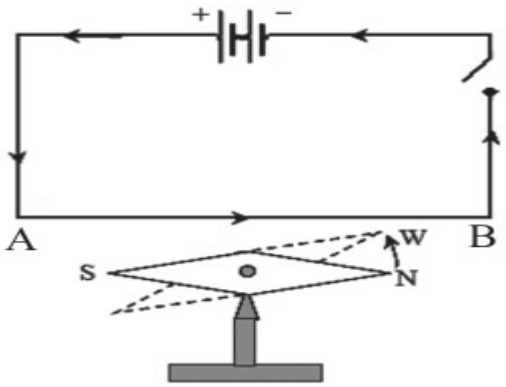
20. Fill up the blanks suitably by observing the table below.

Mirror	Position of image and features	Situations making use of them
Convex mirror	.....(a).....	Used as rear view mirror
Concave mirror	For the object placed between principal focus and pole, the images formed are enlarged and erect.	.....(b).....

SECTION C
(Questions 21 to 28 carries 3 score each)

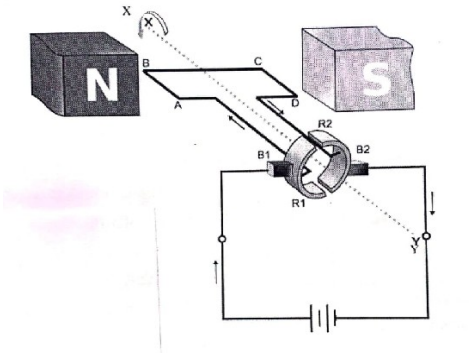
21. Power stations are places where electricity is generated on a large scale for distribution.
a) What is the voltage at which electricity is produced in power stations? (1)
b) Electricity is transmitted at very high voltage from power stations. Explain the reason? (2)
22. Light falling on the surface of an object comes back to the same medium is known as reflection.
a) Write down the laws of reflection. (1)
b) What are the differences between regular reflection and irregular reflection. (2)

23. A conductor placed above a pivoted magnetic needle is shown in the figure.



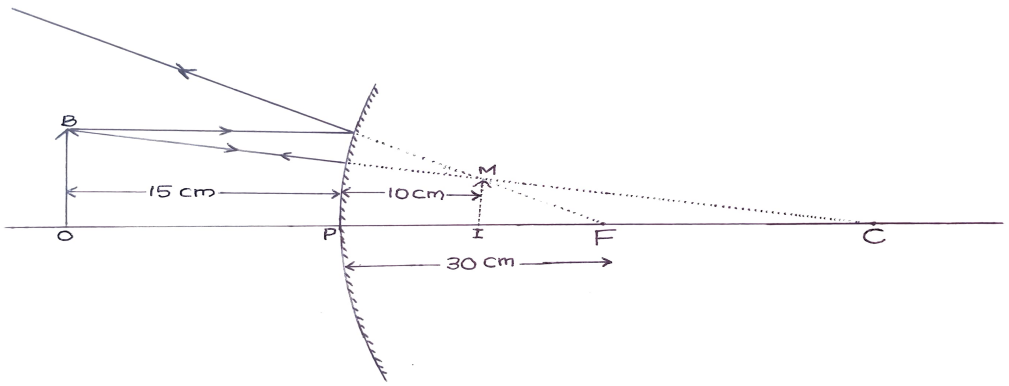
a) What might be the reason for the deflection of the magnetic needle when current flows through the conductor ? (1)
b) Write two methods to make the deflection of the magnetic needle in the opposite direction? (2)

24.Observe the figure.

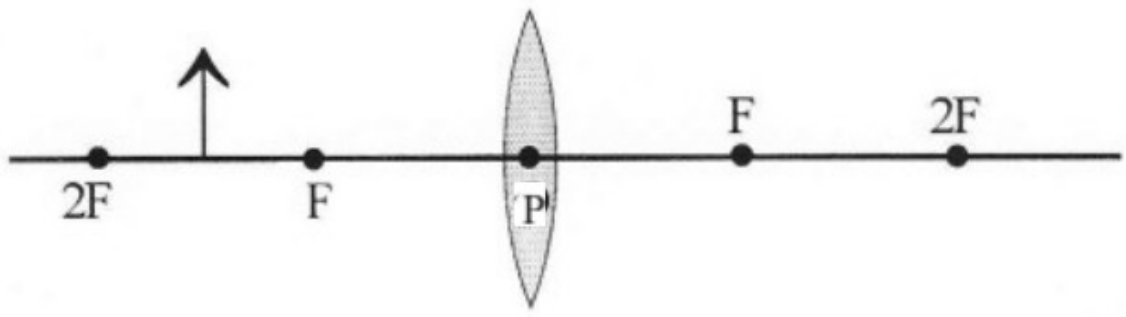


a) Name the device shown in the figure. (1)
b) State the working principle of this device. (1)
c) Name the law which helps to find the direction of motion of the armature. (1)

25. The figure given below shows the image formation by a convex mirror. Analyse the figure and write down the values of **u, v, f** using New Cartesian Sign Convention.



26.. Observe the diagram given below.

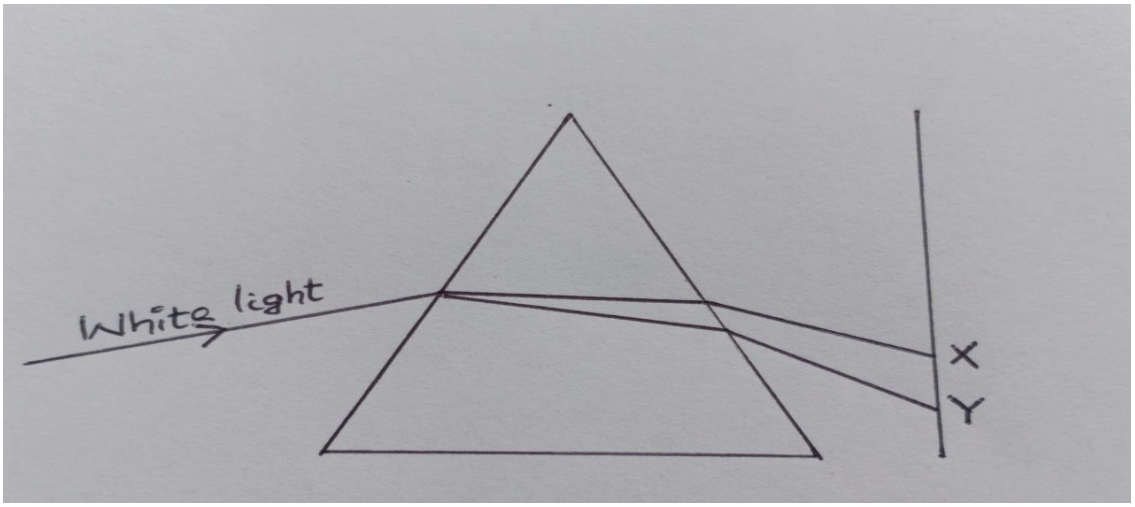


a) Complete the ray diagram and find the position of the image. (2)
b) Write two features of the image. (1)

27. When a heating device is connected to 230 V supply 0.4 A current flows through it.
a) Find the resistance of the heating coil?
b) Calculate the heat developed in 10 minutes in this device?
28. We use LPG as cooking gas for domestic purposes.
a) Write the full form of LPG?
b) Which is the main constituent of LPG?
c) Write any two precautions to be taken to avoid accidents due to leakage of cooking gas?

SECTION D
(Questions 29 to 34 carries 4 score each)

29. Filament lamps are called incandescent lamps.
a) Which substance is used for making the filament? (1)
b) Write any two reasons for using this substance as filament. (1)
c) Why the bulb in a filament lamp is filled with an inert gas? (1)
d) The use of incandescent lamps is to be restricted. Why? (1)
30. When an object of height 2 cm is placed in front of a concave mirror at a distance of 15 cm away from it, a real image is obtained 30 cm away on the same side.
a) Calculate the focal length of the mirror. (2)
b) Find out the magnification. (1)
c) Find out the height of the image. (1)
31.Watt-hour meter is used to measure electrical energy in house hold electrical circuits.
a) How are the household devices connected? (1)
b) Write any two advantages of connecting the devices in this manner? (1)
c) In a house, 4 LED lamps each of 9 W works for 5 hours, 3 fans each of 60 W work for 4 hours and a TV of 100 W works works for 3 hours in a day. Calculate the daily consumption shown by the watt-hour meter? (2)
32. The dispersion of white light is depicted.



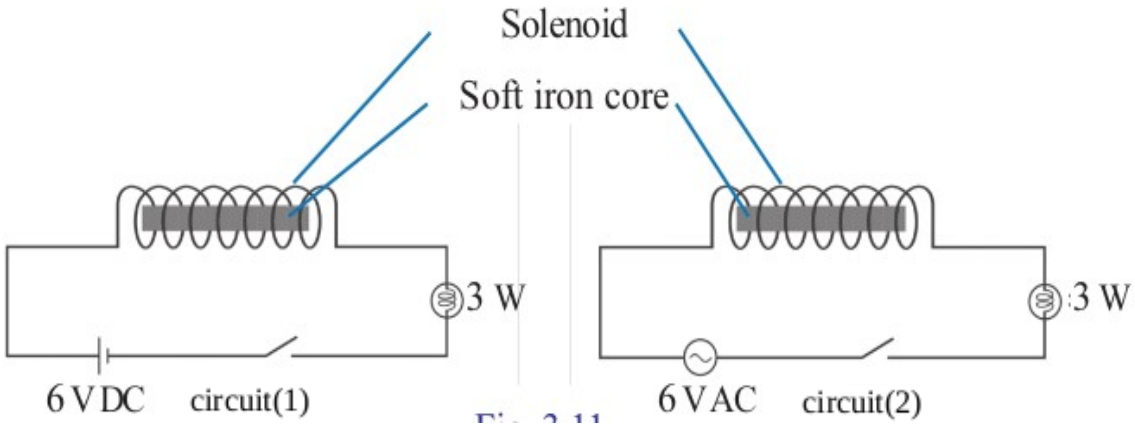
a) Name the colours X and Y. (1)
b) Explain the reason for dispersion. (1)
c) Draw the diagram for getting white light again from the dispersed light by using another prism (2)

33. The speed of light in different transparent media is given in the table.

Medium	Speed of light
water	**2.25×10^8 m/s**
glass	**2×10^8 m/s**
diamond	**1.25×10^8 m/s**

a) What is the relation between speed of light in a medium and its optical density? (1)
b) Write the differences between relative refractive index and absolute refractive index. (2)
c) Calculate the refractive index of diamond with respect to water. (1)

34. Observe the circuits given below.



a) What difference is observed in the brightness of the bulbs in the two circuits when the switch is ON? (1)
b) Justify your answer? (2)
c) What is the working principle of an inductor? (1)