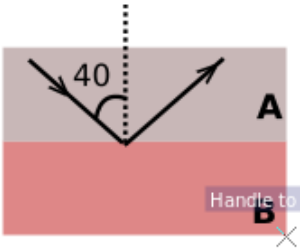
New Pattern
PRE MODEL SSLC EXAMINATION:2022
GHSS SOUTH EZHIPPURAM

Time:90 minutes **Maximum Mark: 40**

PART.1.A
Attend any 4 questions from 1-6 [Score 1]

1. It is marked as 750W&230V in an electric device. What does '750 W' indicate?
2. It is given a few sources of Energy.
   Biogas, solar cell, LPG, wind mill.
   Find out the odd one from them. How does it differ from others?
3. It is written as B 24 in an LPG cylinder. Write down the expiry date of the cylinder.
4. Which of the following never be the magnification of image formed by a concave mirror.
   a. +1 b. -1 c. -0.6 d. -1.2
5. A & B are two transparent media. A ray of light is incident at the angle of 40° and reflected back to the same medium.
   a. Of the two media, which one has greater refractive index.
   b. Which of the following is likely to be the critical angle of this pair of media? (38°/40°/42°)



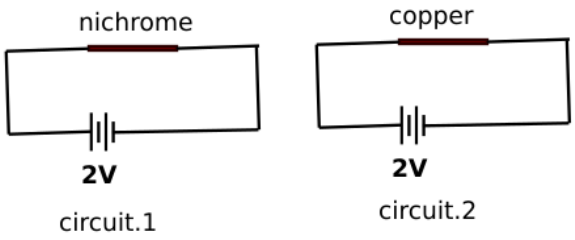
6. Which of the following is NOT a suitable method for reducing transmission loss?
   i. transmit power at high voltage ii. transmit power at low voltage.
   iii. transmit power with low intensity of current.
   iv. transmit power using thick transmission wires.

PART.1.B
Attend all questions (three questions) from 7 to 9 [Score 1]

7. Give two advantages of LED lamp.
8. The surface of the two plane mirrors are arranged at 45° each other. How many images can be seen if an object is placed between the mirrors at the bisector?
9. Which of the following statement is NOT true in resect of hydrogen as a fuel?
   i. Hydrogen is a fuel having highest calorific value.
   ii. Combustion of hydrogen makes no pollution.
   b. Combustion of hydrogen makes pollution.

PART.2.A
Attend the question 10 [Score 2]

10. It is given two circuits in which a nichrome wire and copper wire of the same length and thickness are connected.
    a. Which wire will have high resistance?
    b. Which circuit draws more current?
    c. If the circuits are operated for 10 s, in which circuit will more heat be generated?



PART.2.B
Attend any one question from 11&12 [Score 2]

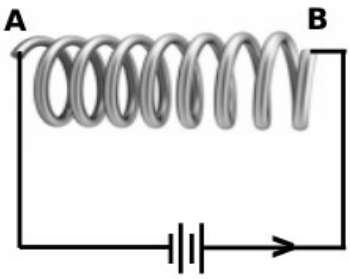
11. When an object is placed before a concave lens at a distance of 20 cm , image is formed at a distance of 10 cm from the lens. Find the focal length of the lens.

12. It is given a few statements. Fill the columns of the given table using these statements.
    i. It is the process of splitting heavy nucleus into light nuclei.
    ii. It is the process of combining lighter nuclei into heavy nucleus.
    iii. It is principle of atom bomb.
    iv. It is the source of energy in the sun.

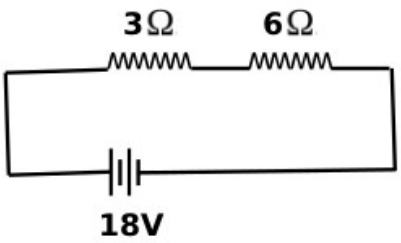
Nuclear fission	Nuclear fusion

PART.3.A
Attend ANY THREE question from 13 to 16 [Score 3]

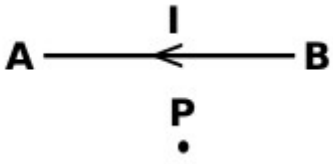
13. See the circuit. When current passes through a coil it behaves as a magnet.
    a. Identify the poles of the ends A & B.
    b. Suggest two methods to increase the strength of this electromagnet.
    c. Give two differences between electromagnet and permanent magnet.



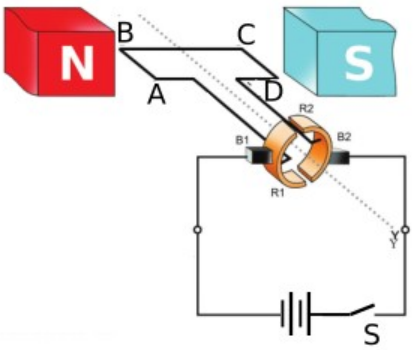
14. Two resistors are connected in the circuit.
    a. Calculate the current in the circuit?
    b. What is the potential difference between the ends of 6 Ω resistor?
    c. If the resistors were connected in parallel, what would be the effective resistance?



15. AB is a current carrying conductor placed on a plane of paper as shown. P is a point on the plane below the conductor.
    a. The direction of magnetic field at P is .....
    (normally into the plane/normally outward from the plane)
    b. State the rule used to detect direction of magnetic field.



16. See the figure.
    a. Identify the device.
    b. Name the component marked as ABCD.
    c.Write down the energy conversion takes place in this device.
    d. When the switch of the device is turned on, ABCD will be rotated in ..... direction.
    (clockwise/anticlockwise)

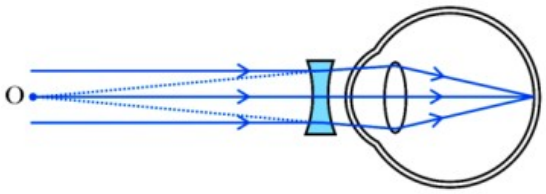


PART.3.B
Attend the question 17 [Score 3]

17. Incandescent lamp is a low cost light source.
    a. What is used for making filament of incandescent lamp?
    b. Give two major characteristics of this material.
    c. The bulb of the lamp is filled with inert gas. Why?

PART.4.A
Attend ANY TWO questions 18 – 20 [4 Score]

18. An eye defect has been rectified with a lens.
    a. Identify the defect.
    b. Which of the following statement is correct in respect of a person suffering from this defect.
    i. near pint is greater than 25 cm
    ii. Near point is less than 25 cm
    iii. Far point is not at infinity.
    c. What may be the causes of this defect?



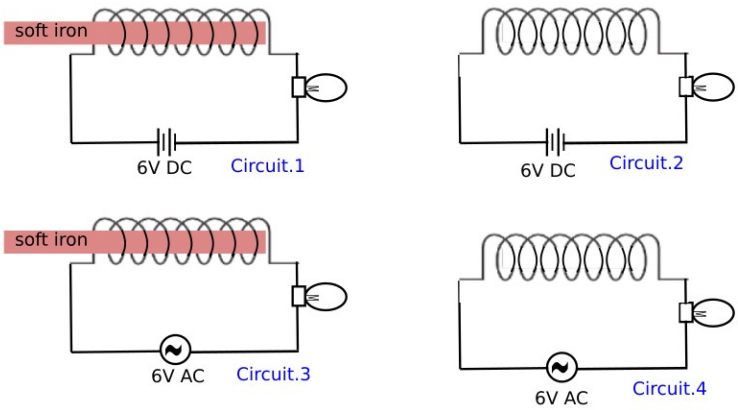
19. An object is placed before a concave mirror at a distance of 20 cm from it. If focal length of the mirror is 30 cm,
    a. Find the distance to the image.
    b. What is the magnification of the image.
    c. At what distance the object is to be placed from the mirror for getting an image having the same size as that of the object?

20. All constituent colours undergo scattering when sun light passes through atmosphere.
    a. What is the relation between wavelength and rate of scattering?
    b. Which is the colour that undergoes maximum scattering?
    c. Briefly explain why horizon appears to have red colour at morning and evening?.

PART.4.B
Attend any one question 21&22 [4 Score]

21. a. The ratio of speed of light in vacuum and speed in a medium is called .....
    b. Refractive index of glass is 1.5 and speed of light in vacuum is $3x10^8$ m/s. Find speed of light in glass.
    c. n = sini/sinr is the mathematical expression for a law. Name the law.
    d. What do 'i' and 'r' represent?

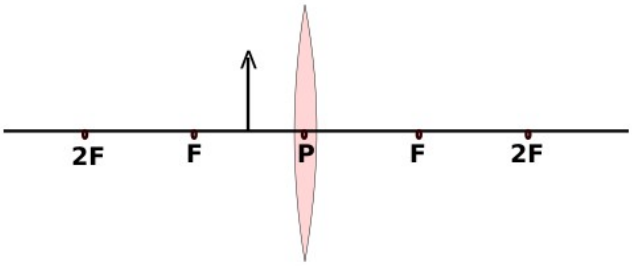
22. It is given four circuits. The coils and lamps are identical.
    a. Find out the circuit which gives light with least intensity.
    b. Find out the two circuits which give light of same intensity.
    c. Name the phenomenon responsible for the difference in the intensity of life.
    d. Give one use of inductor.



PART.5.A

Attend any one question from 23&24 [Score 5]

23. An object is placed before a lens of focal length 25 cm.
    a. When light passes through a lens, it undergoes ..... (reflection/refraction)
    b.Draw the ray diagram of image formation.
    c. Write down the position and three features of the image.
    d. Calculate the power of the given lens?



24. There are two types of transformers.
    a. What kind of transformer is shown in the figure?
    b. What is the working principle of transformer?
    c. If current from a DC generator is given to the primary of this transformer, will the lamp in the secondary glow? Justify.
    d. In a transformer, thick wire is used in the coil, where ..... (current is high/voltage is high/power is high)
    e. In a transformer, there are 200 turns in the primary and 2000 turns in the secondary. What voltage is to be applied at the primary for getting 400 V AC at the secondary?