

SSLC PRE-MODEL EXAMINATION - MARCH 2022

Time : 1½ Hrs.

PHYSICS

Maximum Score : 40

Instructions

- * 15 minutes is given cool-off time
- * Use Cool-off time to read the questions
- * Attempt the questions according to the instructions
- * Keep in mind the score and the time while answering the questions.

PART I**A. Answer any 4 questions from 1 to 6. Each carries 1 score. (1x4=4)**

1. Find the odd one from the group. Give Reason.
(Coke, Cool tar, Peat, Coal gas)
2. What is the reason for the dispersion of light.
(Scattering of light, Refraction, Reflection)
3. In our country AC distributed involtage.
4. Name the mirror which is used as rear view mirror.
5. Which lens always form small, diminished, virtual image.
6. Moving coil loud speaker is working under principle

B. Answer all 3 questions from 7 to 9. Each carries 1 score. (3x1=3)

7. Which one of the following is not a quality of the LED lamps?
 - Not harmful to the environment
 - High efficiency
 - Loss of energy in the form of heat
 - High longevity.
8. Biogas : Methane LPG :
9. If speed of light in one medium is $2 \times 10^8 \text{m/s}$, what is the refractive index of that medium? (Speed of light in air is $3 \times 10^8 \text{m/s}$)

PART II

A. Answer the following questions. Each carries 2 score.

(1x2=2)

10. Ten 3Ω resistors are connected in parallel manner. Find the effective resistance of the combination?

B. Answer any one question from 11 to 12. Each carries 2 score.

(1x2=2)

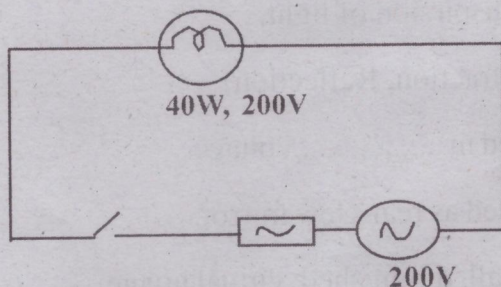
11. What is photovoltaic effect?
12. How does the earth pin differs from the other pins? Which part of the instrument is connected to the earth line?

PART III

A. Answer any three questions from 13 to 16. Each carries 3 score.

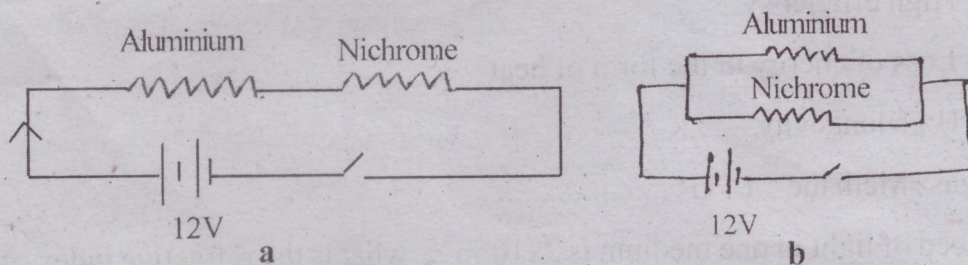
(3x3=9)

13. Observe the figure.



- a) Calculate the amperage of the fuse needed for the circuit. (The amperage of fuses available in market are 1A, 1.25A, 1.5A, 2.2A, 5A, 10A etc.) (1)
- b) If the voltage is drops to 100V. Calculate the power of the bulb. (2)

14. Observe both the circuit.



a) In figure (a), in which resistor more heat is produced ?

(Aluminium/Nichrome)

($\frac{1}{2}$)

b) In figure (b), in which resistor more heat produced ?

($\frac{1}{2}$)

(Aluminium/Nichrome)

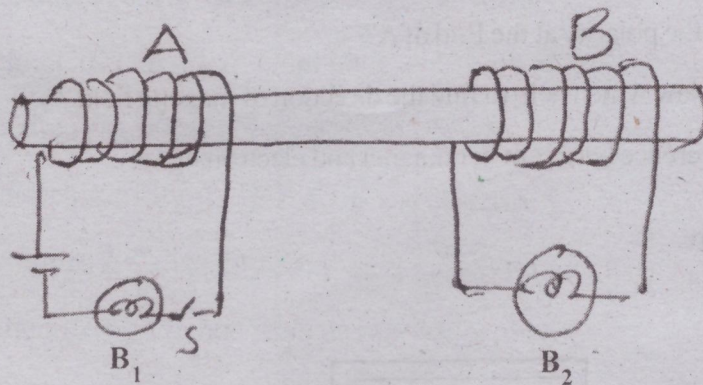
c) Give reason for both

15. a) What is the reason for exerting force on a current carrying conductor placed in a magnetic field? (1)

b) Write down the factors affecting force on the conductor. (1)

c) Name the principle needed to find the direction of the force. (1)

16. Coils wound around a soft iron core connects two bulbs B_1 and B_2 of 6V. Analyse the figure and answer the questions.



a) If 6V dc is given in the coil A and the switch is on which of bulbs B_1 , B_2 will glow? Why? (1 $\frac{1}{2}$)

b) If AC is given in the coil A instead of DC, which of the bulb will glow - B_1 or B_2 ? Why?

B. Answer the following question. This question carries 3 scores.

(1x3=3)

17. An inductor is an insulated copper wire wound in a helical shape.

a) What is the use of inductor in a circuit? (1)

b) In circuits resistors and inductors are used for same purpose. Which is more suitable? Why?

(2)

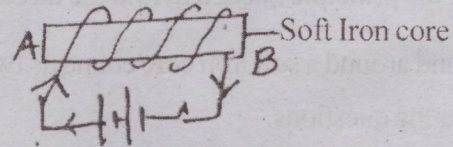
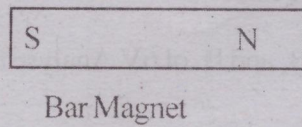
PART IV

A. Answer any 2 questions from 18 to 20. Each carries 4 score. (2x4=8)

18. Electric heating appliances have a main part in which electrical energy changes into heat energy.

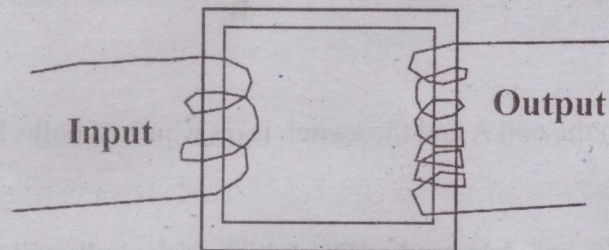
- a) Name the part (1)
- b) Which material is used to that part (1)
- c) What are the peculiarities of this part (2)

19. The following figure represents a bar magnet and electro magnet.



- a) Find out the polarity at the End of A? (1)
- b) Name the law which help to find the direction of magnetic field? (1)
- c) Any 2 difference between bar magnet and electromagnet (2)

20. Observe the figure.



- a) Name the device given (1)
- b) Write the working Principle. (1)
- c) This transformer has 5 turn in primary and 25 turns in secondary. Find out the output voltage when the primary coil has 10V? (2)

B. Answer any one questions from 21 to 22., Each carries 4 score.

(1x4=4)

21. Complete the given table

(4)

Angle(θ)	No. of imges (n)
45°	...(a)...
...(b)...	5
90°	...(c)...
120°	...(d)...

22. Absolute refractive index of two median are given below. Answer the following questions.

Median A = 1.5 ; B = 2.25 (Velocity of light in air is 3×10^8 m/s)

a) Which median has greated optical density

(1)

b) Which Median has greater speed of light

(1)

c) Calculate the speed of light in median A

(2)

PART V

A. Answer any one question from 23 to 24. Each carries 5 score.

(1x5=5)

23. An object is placed at a distance of 15 cm. in front of a mirror. According to new cartesian sign convention focal length is -6 cm.

a) What type of mirror is this

(1)

b) Calculate the distance between the mirror and image.

(2)

c) If the magnification of the image of an object of length 3 cm by a mirror is -2, find the height of the image

(2)

24. a) What are the similiarities and differences between a moving coil microphone and a moving coil loudspeaker?

(3)

b) Which device is used for strengthening the weak signal obtained from Microphone?

(1)

c) Name a device which works on same principle of moving coil microphone.

(1)
