

**SSLC EXAMINATION  
(PRE-MODEL QUESTION PAPER FEBRUARY 2021)**

**PHYSICS**

**Time-1 .30 Hour**

**Total Score-40**

- **First 20 minutes is the cool of 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 keeping the time.**
- **Maximum mark for 1 to 34 question is 40**

**(Question 1 to 8 carries 1 score each )**

1. Which of the following equation doesn't represent the power of a device

(a)  $I^2R$

(b)  $VI$

(c)  $\frac{V^2}{R}$

(d)  $I R$

2. Find the relation and fill in the blanks

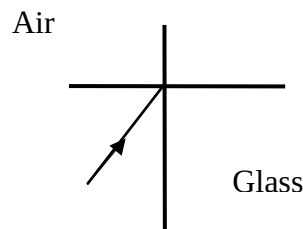
Slip ring : AC generator

..... : DC Motor

3. Find out the odd one

(Armature, Graphite brush, Voice coil, Split rings)

4. Complete the figure



5. If the image formed by a lens is always diminished and erect, which type of lens is this?

6. The phenomenon of splitting up of a composite light into its component colours is:  
(Scattering, Dispersion, Refraction)

7. Find out the odd one

coal; petrol; biogas; natural gas

8. Fill the missing word

LPG: Butane

CNG: \_\_\_\_\_

(Question 9 to 20 carries 2 score each answer)

9. Identify the devices which generate electricity as given in the graphical representations A and B.

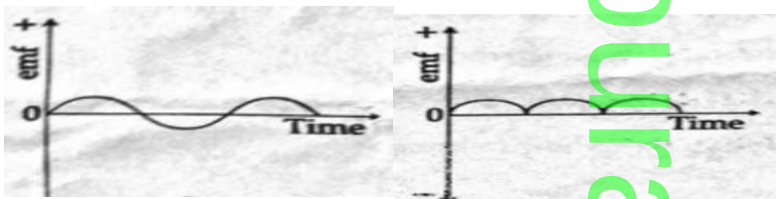
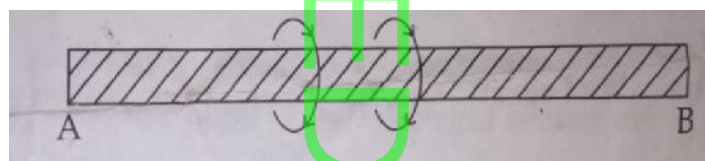


fig A

fig B

10. The magnetic field around a current carrying conductor AB is given in the figure.



a. Find the direction of the current through the conductor?

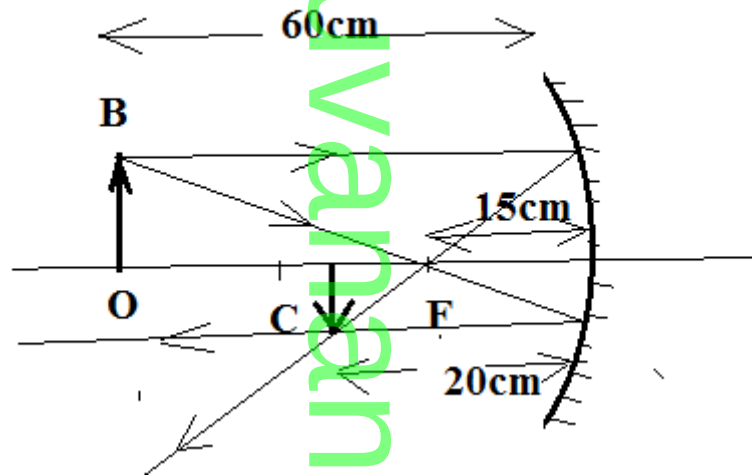
b. Name the law which helped you to find the direction of current?

11. A transformer has 1500 turns in its primary coil and 500 turns in its secondary coil.

a. What type of transformer is it?

b. In this transformer thick wires are used in its ..... ( primary / secondary ).

12 . Observe the fig. and answer the following questions



- From the figure find out  $u, v$  and  $f$  using New Cartesian sign convention.
- Determine the magnification.

13. Filament lamps produce light by glowing with heat

- Which metal is used to make filament?
- Why incandescent lamps are filled with nitrogen?

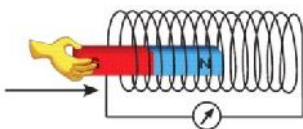
14. Usually rainbow is seen in the form of an arc

- Which colour is seen at the upper edge of the rainbow ?
- The rainbow appears to be \_\_\_\_\_ when the position of the sun is near the horizon (bigger/ smaller )

15. Classify the following energy sources as green energy and brown energy

solar cell, atomic reactor, tidal energy, hydro electric power, diesel engine, windmills, thermal power station.

16. Observe the figure.



Emf is introduced when the bar magnet is moved to and fro in the coil.

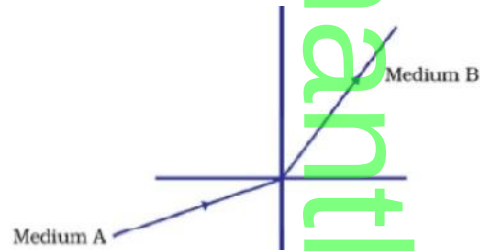
Suggest two ways to increase the current produced.

17. When power is transmitted to long distance energy is lost in the form of heat.

Suggest any two methods to reduce the heat loss in the conductor

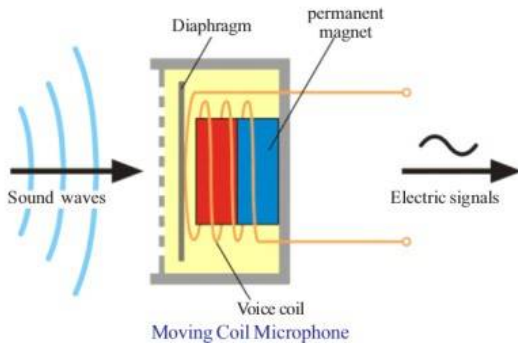
18. Write two precautions to be taken to avoid electric shock

19. The ray diagram of refraction is given.



- Which Medium have high optical density?
- In which medium the speed of light is maximum? .

20 . Given is the diagram of a moving coil microphone.



- What is the working principle of it?
- Give the energy change occurring in a moving coil microphone.

(Question 21 to 28 carries 3 score each answer )

21. . Observe the diagrams carefully and answer the following questions

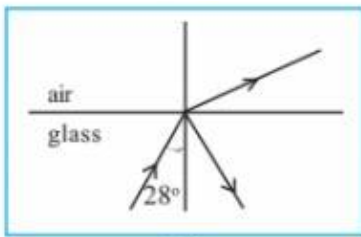


Figure A

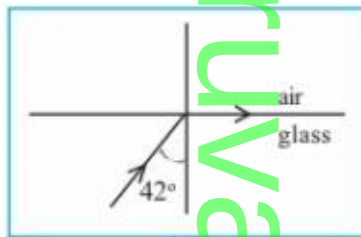


Figure B

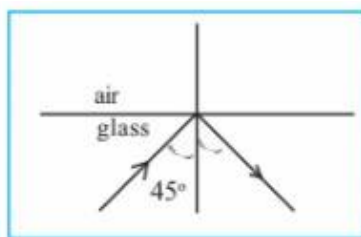


Figure C

- Which figure represents critical angle. (1)
- Name the phenomenon depicted in figure C. (1)
- Explain this phenomenon. (1)

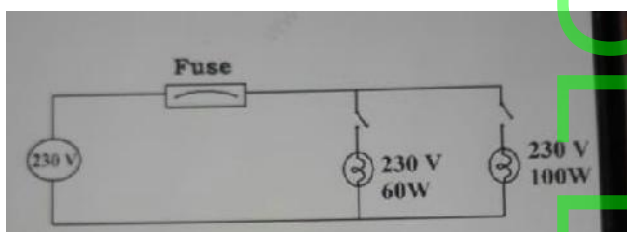
22 . Transformers are devices used to change the voltage without changing the power.

Categorise the following statements to complete the given table.

- Number of turns in the primary coil is more than that in the secondary.
- Number of turns in the secondary coil is more than that in the primary.
- Thick wires are used in the primary.
- Thick wires are used in the secondary.
- Input current is more than the output current.
- Input current is less than the output current.

Step up transformer	Step down transformer

23. Observe the circuit given below

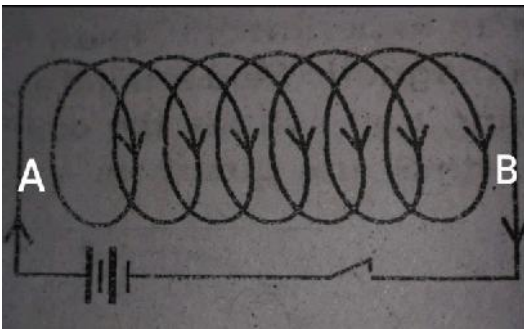


- What will be the wattage of the bulb in the circuit?
- What is the amperage of the fuse wire in the circuit ?

24. Image formation by concave mirrors is given. Match them suitably. 3

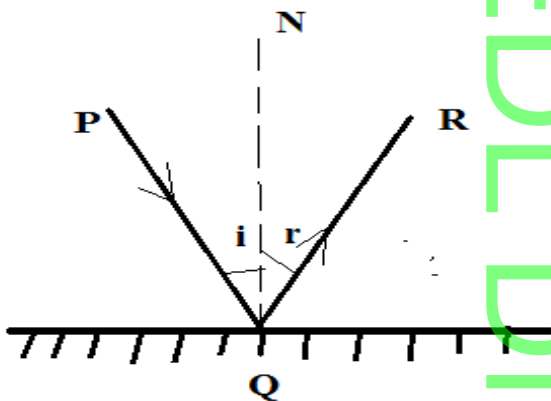
A	B	C
Object between P and F	Image at C	Diminished image
Object beyond C	Image is formed behind the mirror	Same size as that of the object
Object at C	Image between F and C	Magnified image

25. When switch is turned on



- Find the polarity at the end A and B.
- Write the methods to increase the magnetic strength of the solenoid AB.

26. Observe the fig. And answer the following questions

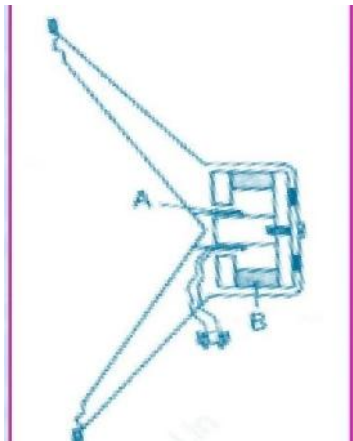


- a Which is the incident ray? (1/2)
- b Which is the reflected ray? (1/2)
- c State laws of reflection. (2)

27. Fuse wire is to be used by understanding the amperage correctly

- a) What is meant by amperage?
- b) A 1840 W heater works on 230 V supply. Calculate the amperage of the fuse wire for the heater?

28. Observe the figure given below.



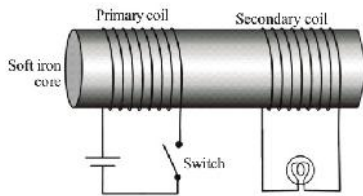
- a. Identify the device shown in the figure?
- b. Name the parts A and B.
- c. What is the working principle of this device?

**(Question 29 to 34 carries 3 score for each answer )**

29 Sunlight reflects on the dust particles and air molecules present in earths atmosphere.

- a) This phenomenon is known as .....
- b) define this phenomenon.
- c) What is the colour of the sky on moon ? Explain this on the basis of the above phenomenon .

30 Observe the diagram and answer the following questions.



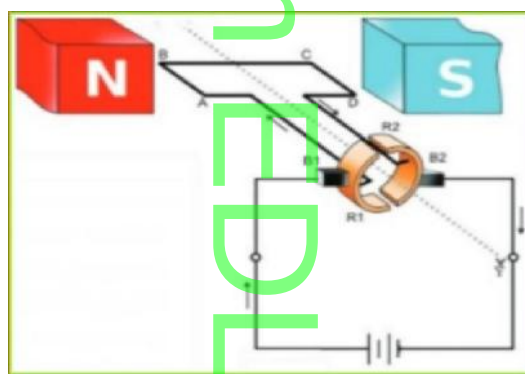
- a) Turn on and turn off the switch continuously. What do you observe?
- b) If the switch is kept in the on position, what do you observe?
- c) What will happen if AC is given to the primary coil instead of DC?
- d) Name the phenomenon.

31. Some terms related with a lens are given below. Fill suitably.

(Principal axis, Optic centre, Focal length, Centre of curvature)

- a) The midpoint of a lens is .....
- b) The centre of spheres of which the lens is a part is called .....
- c) The imaginary line passing through the centres of curvature is called .....
- d) The distance between optic centre and principal focus of a lens is .....

32. Observe the figure given below.



- a. Write down the main parts of the above device?
- b. Find out the direction of force experienced on the sides of AB and CD.
- c. What is the result of the forces developed on the coil?
- d. If the battery is connected such as to reverse the direction of current, what will be the result of the force developed?



33. LPG is a colourless odourless gas. Domestic LPG produces an odour.

- a. Name the gas used as indicator.
- b. Is LPG denser than air?
- c. Write a few precautions that are taken to avoid accidents due to LPG leakage?
- d. A marking of “ A24” is made on the top of the LPG gas cylinder .What does it indicate

34. Two heaters of resistances 1150 Ohm and 460 Ohm are connected to 240 V mains separately .

- a) Which heater produces less heat If both heaters works 5 minutes . Justify your answer

Two resistors are connected as shown in the two diagrams below

- b) Observe the figure A and figure B and complete the table

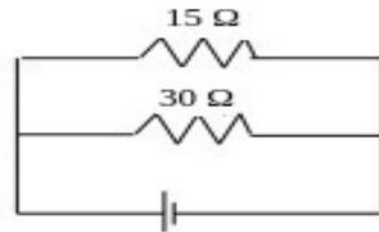
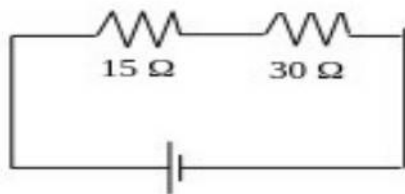


Figure	Connection Method	Effective Resistance
Fig A		
Fig B		