

SSLC MODEL EXAMINATION 2023

ANSWER KEY PHYSICS - ME235

PREPARED BY

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ANSWER KEY PHYSICS - ME235

SECTION A 1 MARK EACH

1. Mechanical energy - Electrical energy
2. Wind mill
3. Greater than 25 cm
4. Convex mirror
5. Focal length of a concave lens is **negative**

SECTION B 2 MARK EACH

6. Power $P = I^2 R = 4^2 \times 230 = 920W$
7. a) diaphragm (Voice coil converts electric signal to mechanical energy, diaphragm converts it to sound energy)
b) Motor principle
8. a) Critical angle
b) Yes, If we increase the angle of incidence then the ray reflected back to the same medium.
9. a) $n = (360/\theta) - 1 = (360/30) - 1 = 11$ images
b) Virtual, Erect and same size
10. a) Step down Transformer
b) $V_P = V_S I_S / I_P = (100 \times 4) / 2 = 200V$

SECTION C 3 MARK EACH

11. a) Dispersion, Internal reflection and refraction.
b) P – Violet, Q – Red
c) Inner edge – Violet, Outer edge – Red

12. a) One of the basic differences between a fuse and a circuit breaker is that a fuse is a metal piece that melts when there is excess current due to overload, while a circuit breaker has an internal switch that gets tripped when there is excess current in the circuit from an overload or short circuit.

b) MCBs have more sensitive to current than fuse.

It has quick work against short circuits.

It works quickly on overloading and under voltage.

It is reusable hence less maintenance cost and less replacement cost.

It is very simple to resume the supply. (Any one)

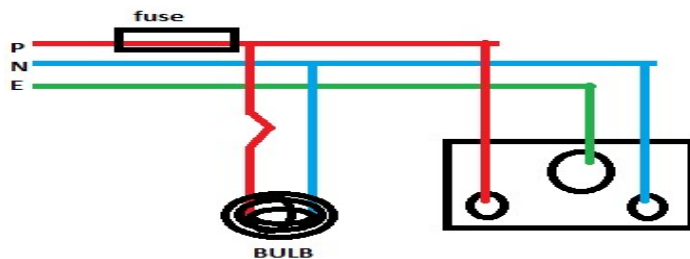
c) ELCB means Earth Leakage Circuit Breaker. It is a safety device that is used while installing an electrical device that has high earth impedance. Its function is to avoid shock and detect the voltage in the circuit. It protects the animals and human beings from electric shock. RCCB is Residual Current Circuit Breaker. It is a device that breaks an electrical circuit so that there is no harm due to electric shock. The function of RCCB is to sense the excess current in the circuit. It does not require an earth wire.

13.a) Towards P

b) Fleming's Left Hand Rule - states that if we arrange our thumb, forefinger and middle finger of the left-hand perpendicular to each other, then the thumb points towards the direction of the force experienced by the conductor, the forefinger points towards the direction of the magnetic field and the middle finger points towards the direction of the electric current.

14.a)1. Connection of fuse 2. Connection of earth line in three pin sockets.

b)



15.a) Concave mirror

b) -10cm

c) $m = -v/u = -(-20/-20) = -1.$

SECTION D 4 MARK EACH

16.

a) $1/R = 1/R_1 + 1/R_2 = 1/40 + 1/60 = 100/2400$

$R = 2400 / 100 = 24 \Omega$

b) $I = V/R = 12/40 = 0.3A$

c) $H = V^2 t / R = (12^2 * 2 * 60) / 60 = 288 J$

17.a) Expires on June 2023 (April to June)

b) Butane

c) Ethyl mercaptan or ethanethiol.

d) Do not panic

Open all doors & windows for ventilation. LPG is heavier than air and hence it tends to settle down. Opening doors must be the first step

Put off all flames, lamps, incense sticks etc.

Put the safety cap back on the cylinder.

Close regulator and burner knobs.

Do not operate any electrical switches, appliance or equipment in the kitchen.

Isolate the electrical supply from the outside source.

Call your LPG dealer for emergency assistance

Try to isolate the cylinder to an open space and cover it with wet cloth.

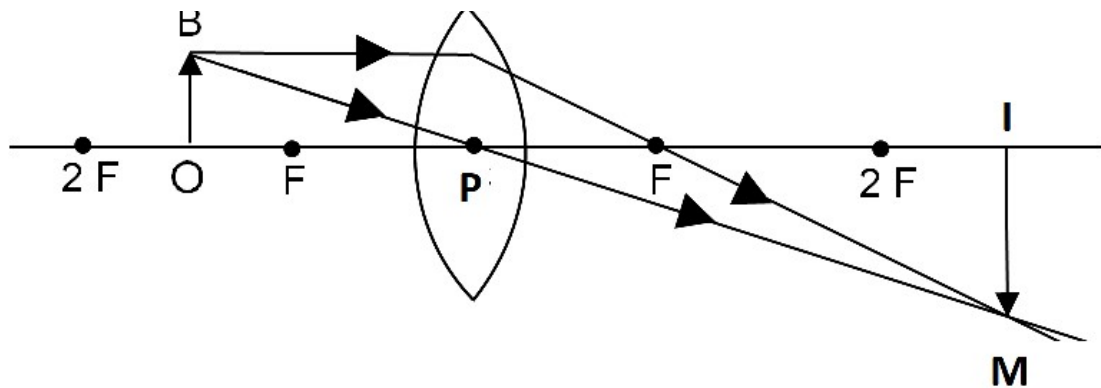
Call the fire brigade and police if required. (ANY TWO)

18.a) Behind the retina

b) Hypermetropia or long-sightedness, or far-sightedness.

c) Power of eye lens decreases, eyeball is shorter than normal.

19.



b) Inverted, Real, Enlarged

c) Greater than 1

20. a) First of all switch off power in the portion where the water is likely to come in contact with electrical wire.

Let the wall be dry.

Correct the source of leakage of water at the wall.

Seal the joints of switch boxes etc.

(ANY TWO)

b) Don't touch someone who has been shocked if they're still in contact with the source of electricity.

Turn off the source of electricity, if possible. Begin CPR if the person shows no signs of circulation.

c) First assess the person's condition. Check whether the patient is conscious and breathing. If the person is unconscious and has stopped breathing, begin cardiopulmonary resuscitation (CPR). Give 30 compressions. If the person is conscious then massage arms for increasing blood circulation and shift to hospital Immediately
