PHYSICS - ANSWER KEY

Part I

A. 1. Peat. Remaining subtances obtianed when coal is distilled in the absence of air.

2. Refraction

3. 11000V or 11Kv

4. Convex Mirror

5. Concave lens

6. Motor principle

B. 7. Loss of energy in the forming heat

8. Butane

9. 1.5

Part II

A. 10a) Refective $= R/n = \dfrac{3\Omega}{10} = 0.3\Omega$

B. 11. When solar energy /Light Energy falls on N side of PN junction diode, a small electric current is obtained due to the flow if electronus to P region from N region. This phenomenon is called photovoltaic effect.

12. Earth pin is thick and long. As it is long if first comes in contact with the earth. Similarly it loses the contact with the earth ony at the end. As it is thick it offers less resistance. Hence it carry more current.

It is connected to the metallic part of the body.

Part III

A. 13. a) $A = \dfrac{W}{V}$

$$= \dfrac{40}{200} = 0.2A$$

$$= 1A$$

b)

$$R = \frac{V^2}{P} = \frac{200 \times 200}{40} = 1000\Omega$$

$$V = 100V, \quad R = 1000\Omega$$

$$P = \frac{V^2}{R} = \frac{100 \times 100}{1000} = 100W$$

14. a) Nichrome

b) Aluminium

c) Fig (a), series connection - same current flours H=I²Rt which resistar has greater R, it produces more heat.

   Fig (b) - Parrallel connector - Diiferene current of which resistar has lesser R more current flours through it and hence more heat.

15. a) Surrounding the current carrying conductor there will be a magnetic field. Both magnetic fields coming in action and hence there is a force.

b) Current, strength of magnetic field.

c) Fleming's left hand rule.

16. a) B1. Because Dc is applying. There will be no changing magnetic field.

b) B1 and B2.. These is a varying magnetic field and mutual induction takes place.

B.

17. a) To conduct ac in a circuit with out power loss.

   b) Inductor

      Resistor - There will be energy loss in the form of heat.

      Inductor - There will be no power loss.

Part IV

A.   18.

   a)   Heating coil

   b)   Nichrome

c) High melting point, hight resistivity, becomes red hot for a long time. (Any 2)

19. a) North pole

b) Right hand thumb rule - James clerk maxwell

c) Bar magnet - magnetic power cannot change permanent

Electro magnet - magnetic power changes according to the intensity of electric power temporary. When the electricity is out off magnetic power loss.

20. a) Step up transformer

b) Mutual induction

c) $\dfrac{V_1}{N_1} = \dfrac{V_2}{N_2}$ $\qquad$ $\dfrac{10}{5} = \dfrac{V_2}{25}$ $\qquad$ $V_2 = 50V$

B. 21. No. of Images $n = \dfrac{360}{\theta} - 1$

a) 7

b) 60^0

c) 3

d) 2

22. a) Median B

b) Median A

c) $n = {}^c\!/_v$ $\qquad$ $V = {}^c\!/_n$

$V = \dfrac{3 \times 10^8}{1.5} = 2 \times 10^8 \, m/s$

Part V

A. 23. a) Concave

b)

u = -15cm

f = -6cm

$$\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$$

$$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$$

$$V = \frac{uf}{u - f} = \frac{(-15) \times (-6)}{(-15) - (-6)}$$

$$= \frac{+90}{-9} = -10cm$$

c) ho = 3cm

m = =2

$$m = \frac{hi}{ho}$$

$$-2 = \frac{hi}{3}$$

hi = -2x3 = -6cm

24. a) Similaritiess - Permanent Magnet, Voice coil, Diaphram.

Difference	Microphone	Lound Speaker
Working Principle	Electromagnetic Induction	Motor Principle
Energy change	Mechaical Energy to Electrical Energy	Electrical Energy to Mechaical Energy

b) Amplifier

c) Generator (ac/dc)

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