

ANSWER KEY
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QUOTES

“Self-belief
and hard work
will always
earn you
success.”
— Virat Kohli,
Indian cricketer

Q 1 TO 5 (ANSWER ANY 4 - 1 SCORE)

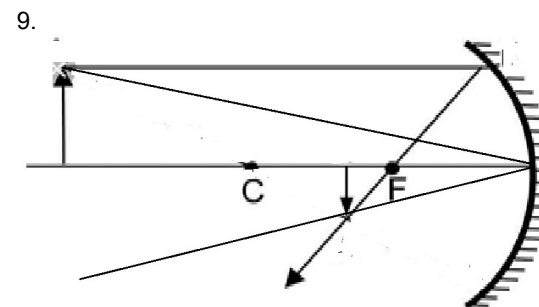
1. Magnetic effect
2. Electromagnetic induction
3. Pole
4. Total Internal Reflection
5. 25cm

Q 6 TO 10 (ANSWER ANY 4 - 2 SCORE)

- 6a) The main disadvantage is the loss of energy in the form of heat.
b) High resistivity, High melting point & Ability to emit white light in the white hot condition.

- 7 a). $16+16 = 32$ ohm
b. When connected as parallel $R = 16/2 = 8$ ohm
 $I = V/R$
 $= 24/8$
 $= 3A$

- 8 a) Fleming's left hand rule
b) Electric motor, Moving coil loud speaker



- 10.a) (iii) Hydrogen
b) (iv) Butane
c) (i) Carbon
d) (ii) Methane

Q 11 TO 15 (ANSWER ANY 4 - 3 SCORE)

11.a. The end of the current carrying solenoid at which the current flows anti clock wise behaves as a north pole while that end at which the direction of current is clockwise behaves as a south pole .

b. **Electromagnet** –Magnetism is temporary & Polarity can be change.

Bar magnet –Magnetism is permanent & Polarity cannot change.

12.a. Stepdown transformer

$$b). V_S I_S = V_P I_P$$

$$V_S = (V_P I_P) / I_S = (240 \times 0.5) / 5 = \underline{24V}$$



EMAIL



TWITTER HANDLE



TELEPHONE



LINKEDIN URL



- 13.a) Power of lens prescribed by the doctor
 b) myopia or short sightedness
 c) Increasing the size of the eyeball, increasing the power of the eye lens.

14.a) $h_i = -3\text{cm}$ $h_o = +6\text{cm}$ $u = -10\text{cm}$

$$M = h_i / h_o$$

$$= -3/6 = \underline{-0.5}$$

b) $m = -(v/u) -0.5$
 $= -(V/-10)$

$$V = -0.5 \times 10 = \underline{-5\text{cm}}$$

15. a)Medium-1

b.i) The rate of light's speed changes as it comes out of a medium and goes inside a medium. This change in the refractive index is known as the relative refractive index.

ii) The absolute refractive index is defined as the ratio of the speed of light in a vacuum to the speed of light in the given medium. It is always greater than 1.

Q 16 TO 20 (ANSWER ANY 4 - 4 SCORE)

16a. power = $v^2/R = 240 \times 240 /60$
 $= 240 \times 4 = \underline{960W}$

b. $= v^2t /R = 960 \times 300 = \underline{288000J}$

c. Energy consumed $= pt /1000 = (960 \times 10) /1000$
 $= \underline{9.6 \text{ unit.}}$

17 a. 11KV

b. The energy loss or power loss(ohmic loss) is the electricity lost in the form of heat in the transmission lines or conductors , One of the main causes of power loss is the Joule effect found in transformers and power lines.

c. Power loss can be reduce by increasing the transmission voltage and decreasing the current.

18 a. Convex lens

b. $u = -15\text{cm}$ $f = +10\text{cm}$

$$1/v - 1/u = 1/f \rightarrow 1/v = 1/f + 1/u$$

$$V = uf / u+f = -150/ -5 = 30\text{cm}$$

c. Enlarged, inverted & real image

19.a) Dispersion and internal reflection

b.Red

C .Due to the highest wavelength of red , it can travel more distance with least scattering rate compare to blue region of visible spectrum .

20 a).Kalpakkam

b. Nuclear energy--is converted into thermal energy--then converted into mechanical energy --then into electrical energy.

c) pollution caused by radioactive waste substance from nuclear power plant in water, air and land, also by radiation from radio isotopes to our environment.

