

B.C.M.SCHOOL BASANT AVENUE, DUGRI ROAD, LUDHIANA

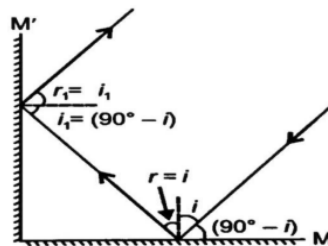
CLASS-X

SUBJECT - SCIENCE

(BIO - LIFE PROCESSES & PHY - LIGHT)

(ANSWER KEY)

1. C
2. A
3. C
4. A
5. When the two mirrors are placed at 90° to each other, the incident and the reflected rays will remain parallel to each other.



6. Focal length (f) = 40cm

Magnification (m) = $3/4$

Using sign conventions of concave mirror

$f = -40\text{cm}$; $m = -3/4$ as $m < 1$ hence image will be real and inverted $m =$

$-v/u$

$$-3/4 = -v/u$$

$$3u = 4v$$

$$v = 3u/4$$

Using mirror formula

$$1/f = 1/v + 1/u$$

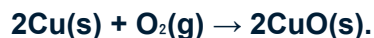
$$1/-40 = 4/3u + 1/u$$

$$-1/40 = 7/3u$$

$$U = -280/3 = -93.33 \text{ cm}$$

Hence objects should be placed 93.33cm in front of the mirror.

7. (a) Copper powder upon heating reacts with oxygen (present in air) to form cupric oxide or copper (II) oxide.



(b) (i) Copper powder is brownish in colour.

(ii) The substance formed after heating is cupric oxide. It has black colour.

(c) The reaction can be reversed by heating cupric oxide in a current of hydrogen.



In this reaction, H_2 undergoes oxidation to H_2O and CuO is reduced to Cu

8. (a) We know that $n = \sin i / \sin r = c/v$

Since the value of $\sin r$ will be least for 15° and maximum for 45° among the three, the velocity of light will be

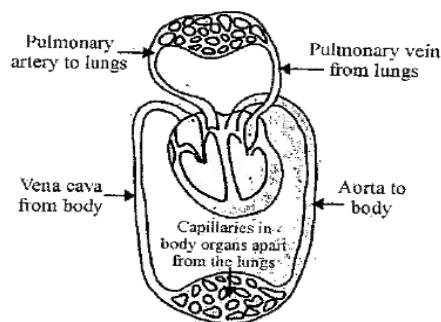
(i) minimum in medium R.

(ii) maximum in P.

(b) $n = \sin i / \sin r$

$$= \sin 45^\circ / \sin 30^\circ = 1.141$$

9.



10. (a) These do contain chlorophyll are the sites for capturing sunlight resulting in its

activation.

(b) The main difference between the two epidermis is that the upper epidermis is continuous while lower epidermis is discontinuous due to presence of stomata which allow gaseous exchange.

(c) Air spaces just behind the lower epidermis contains CO₂ from outside and removes H₂O from inside the cells.

(d) Mesophyll layer is parenchymatous cells which contain chloroplasts and are main sites of photosynthesis.