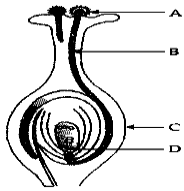
SCIENCE
REVISION and MODEL QUESTIONS

47. Name the parts labeled as A, B, C and D in the diagram given below:



Ans:- A – Pollen grains
B – Pollen tube
C – Ovary
D – Ovule (ovum)

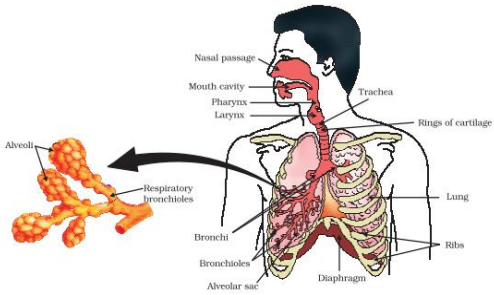
48. What is the far point and near point of the human eye with normal vision?

Ans- The minimum distance of the object from the eye, which can be seen distinctly without strain is called the near point of the eye. For a normal person's eye, this distance is 25 cm.

The far point of the eye is the maximum distance to which the eye can see objects clearly. The far point of a normal person's eye is infinity.

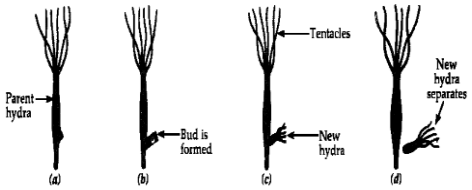
49. Draw the Human respiratory system

Ans:-



50. Explain budding in *Hydra* with the help of diagrams only.

Ans: *Budding in Hydra.* Hydra reproduces by budding which is an asexual type of reproduction.



During this type of reproduction, a bulb like projection arises from the parent body which is known as bud. The bud may be unicellular or multicellular formed by mitotic division of its cells. This bud then grows gradually to form a small hydra. And finally, the tiny new hydra detaches itself from the body of the parent hydra and lives as a separate organism. Thus, the parent hydra produces a new hydra.

51. Name the type of mirror used (i) by dentists and (ii) in solar furnaces. Give *two* reasons why such mirrors are used in each case.

Ans: (i) ***Concave mirrors*** are used by *dentists* to see the large images of the teeth of patients because when a tooth is within the focus of a concave mirror, then an enlarged image of the tooth is seen in the concave mirror. Thus it becomes easier to locate the defect in the tooth.

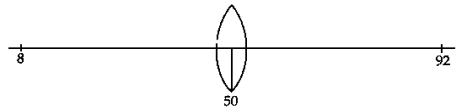
(ii) Large concave mirrors are used in *solar furnaces* as reflectors. Solar furnace is placed at the focus of the concave reflector which focuses the Sun's heat rays on the furnace due to which the solar furnace gets very hot. Even steel can be melted in this solar furnace.

52. An object placed on a metre scale at 8 cm mark was focused on a white screen placed at 92 cm mark, using a converging lens placed on the scale at 50 cm mark.

(i) Find the focal length of the converging lens.

(ii) Find the position of the image formed if the object is shifted towards the lens at a position of 29.0 cm.

(iii) State the nature of the image formed if the object is further shifted towards the lens.



Soln:- Object placed at 8 cm mark,
Real image formed at 92 cm mark,
Converging lens is placed at 50 cm mark
This implies that:
Object distance, $u = -42$ cm
Image distance, $v = +42$ cm
(i) Focal length, $f = ?$

According to lens formula :

$$\frac{1}{v}-\frac{1}{u}=\frac{1}{f} \qquad \Rightarrow \qquad \frac{1}{42}-\frac{1}{-42}=\frac{1}{f}$$

$$\Rightarrow \frac{1}{f}=\frac{1}{42}+\frac{1}{42}=\frac{2}{42}=\frac{1}{2} \qquad \therefore \qquad \mathbf{f = +21\ cm}$$

(ii) $f = +21$ cm, Object position is at 29 cm

$$\Rightarrow u = -21 \text{ cm} \qquad \Rightarrow \qquad v = ?$$

$$\frac{1}{v}=\frac{1}{f}+\frac{1}{u} \qquad \Rightarrow \qquad \frac{1}{v}=\frac{1}{21}+\frac{1}{-21}$$

$$\Rightarrow \frac{1}{v}=\frac{1-1}{21} \qquad \Rightarrow \qquad \frac{1}{v}=\frac{0}{21}$$

$$\therefore \ v=\frac{21}{0} \qquad \Rightarrow \qquad v=\frac{21}{0}=\infty$$

So image is formed at infinity.

(iii) If the object is further shifted towards the lens then a virtual, erect and magnified image will be formed behind the object.