

Central Board of Secondary Education

OR

- (i) Describe the role of prostate gland, seminal vesicle and testes in the human male reproductive system.
- (ii) How is the surgical removal of unwanted pregnancies misused?
- (iii) Explain the role of oral contraceptive pills in preventing conception.

- 29 (i) Consider a conductor of resistance 'R', length 'L', thickness 'd' and resistivity 'ρ'. 5
Now this conductor is cut into four equal parts. What will be the new resistivity of each of these parts? Why?

(ii) Find the resistance if all of these parts are connected in:

- (a) Parallel
- (b) Series

(iii) Out of the combinations of resistors mentioned above in the previous part, for a given voltage which combination will consume more power and why?

- 30 (i) A lens produces a magnification of -0.5. Is this a converging or diverging lens? If 5
the focal length of the lens is 6 cm, draw a ray diagram showing the image formation in this case.

(ii) A girl was playing with a thin beam of light from a laser torch by directing it from different directions on a convex lens held vertically. She was surprised to see that in a particular direction, the beam of light continues to move along the same direction after passing through the lens. State the reason for her observation. Draw a ray diagram to support your answer.

OR

(i) On entering in a medium from air, the speed of light becomes half of its value in air. Find the refractive index of that medium with respect to air?

(ii) A glass slab made of a material of refractive index n_1 is kept in a medium of refractive index n_2 .

A light ray is incident on the slab. Draw the path of the rays of light emerging from the glass slab, if (i) $n_1 > n_2$ (ii) $n_1 = n_2$ (iii) $n_1 < n_2$
