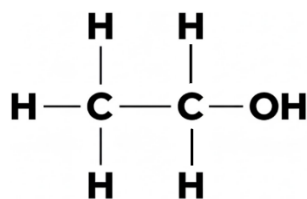


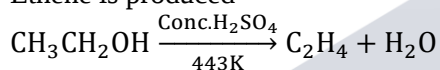
SECTION-A

1. C_2H_6, C_3H_8
2. Creation of DNA copy / Replication / Copying of DNA
3. 1000000 J
4. •Virtual
 - Erect
 - Diminished
 - On the same side as the object / or any other characteristic
5. • Conserving forests helps in (i) retaining sub soil water and (ii) checking floods / any other
 - Conserving wild life helps in (i) maintaining ecological balance and (ii) protecting the nature (or any other)
6. •Water stored during rainy season can be used as and when required by the community.
 - Ground water level increases due to recharging.

7.

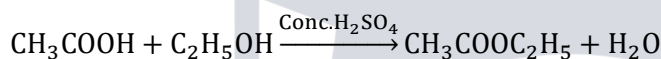


Ethene is produced

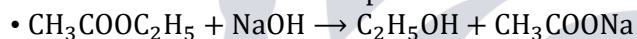


Conc. H_2SO_4 acts as a dehydrating agent.

8. • Esterification - A process in which an alcohol and a carboxylic acid react in the presence of conc. H_2SO_4 to form an ester.



• Saponification - A process in which an ester reacts with sodium hydroxide to form sodium salt of an acid and alcohol / an ester reacts in the presence of an acid or a base to give back the alcohol and carboxylic acid.



- Esters are used in ice creams / perfumes
- Saponification process is used in preparation of soap.

9. • Periods - 7 , Groups - 18

• Metallic character decreases along the period because effective nuclear charge increases on the valence electrons hence decrease in tendency to lose electrons.

• Metallic character increases down a group because effective nuclear charge experienced by valence electrons decrease, hence tendency to lose electron decreases.

10. • Aluminium (Al)

Reason - Valency of Na is 1, Mg is 2, Al is 3

• Sodium (Na)

Reason - As we move from left to right in a period, the atomic radius decreases / increase in nuclear charge pulls the electrons closer to the nucleus reducing the atomic size.

• Sodium (Na)

Reason - Reactivity decreases on moving from left to right in a period / any other reason

11. • For continuation of species / perpetuation of species

- It promotes diversity of characters / helps to show the variations which enhances the survival chances.
- Increases population of a species / any other answer

12. • Vegetative propagation - A process in which any vegetative part of a plant (root, stem or leaf) gives rise to a new plant under appropriate conditions.

• Two advantages :- (i) Large number of plants obtained in a short interval. (ii) Propagation of seedless plants is made possible / any other advantage.

• Two disadvantages :- (i) No genetic variations, so, less

• adaptability to the environment. (ii) The disease of plants gets transferred to the offsprings.

13. • Three techniques - Barrier method, chemical method, surgical method

• Chemical method

• It maintains health of the woman, parents can provide more attention to children / more resources are available to the family / any other.

14. • In Mendel's experiment, when pure tall pea plants were crossed with pure dwarf pea plants, only tall pea plants were obtained in F_1 generation.

• On selfing the pea plants of F_1 generation both tall and dwarf pea plants were obtained in F_2 generation.

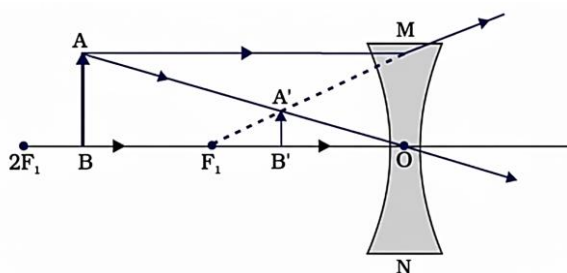
• Reappearance of the dwarf pea plants in F_2 generation proves that the dwarf trait was inherited but not expressed in F_1 generation.

15. • Different life forms have evolved during the course of evolution. Classification deals with the grouping of these life forms into groups and sub groups based on similarities and differences.

• The more characteristics any two species have in common, more closely they are related.

• Thus classification helps in tracing the evolutionary relationship between the two organisms. Hence, evolution and classification are interlinked.

16. Concave / diverging lens.



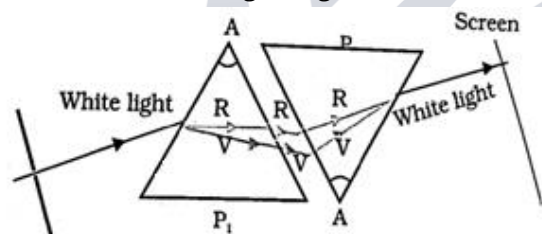
Direction of rays

$$f = \frac{1}{P}$$

$$P = -10D$$

$$f = \frac{1}{-10D} = -0.1 \text{ m} / -10 \text{ cm}$$

17. Different colours of light bend through different angles with respect to the incident ray / different speed of different colours of light in glass / different values of refractive index of glass for different colours of light.



Direction Of Ray & labelling

18. (a) Two ways of creating awareness

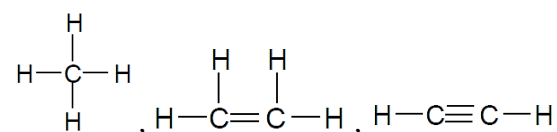
- Door to door campaigning
- Nukkad natak / any other method.

(b) Rain water harvesting with explanation / preventing over extraction of underground water / any other method

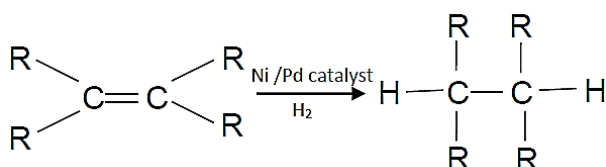
19. • Compounds of hydrogen and carbon

- Alkanes - C_nH_{2n+2}
- Alkenes - C_nH_{2n}
- Alkynes - C_nH_{2n-2}

•



- Addition reaction / hydrogenation



20. (a) Functions:

• (I) Ovary:-

(i) Production of female hormones / estrogen / progesterone

(ii) Production of female gamete/egg/ germ cells

• (II) Uterus:-

(i) Implantation of zygote/embryo

(ii) Nourishment of developing embryo

• (III) Fallopian tube :-

(i) Transfer of female gamete from the ovary

(ii) Site of fertilization

(b) Structure of placenta:- It is a special disc like tissue embedded in mother's uterine wall and connected to the foetus / embryo.

Functions of placenta:- It provides a large surface area for glucose and oxygen / nutrients to pass from mother's body to the developing / developed embryo / foetus and also helps in passing the waste from the foetus / embryo to the mother's body.

21. • Acquired traits - Traits which develop in the life time of an individual and do not pass to the progeny

Example- Learning a skill such as dance / music / loss of body parts / weight / any other example.

• Inherited traits - Traits present in the gamete / germ cells which can be seen in the progeny.

Example - Skin colour / eyebrows / any other example.

• Reasons - Traits / characteristics acquired during one's life time do not bring any change in the DNA of the reproducing cells / germ cells.

Examples - Decrease in body weight of beetles due to starvation do not pass on to the next generation because there is no change in the germ cells of beetles.

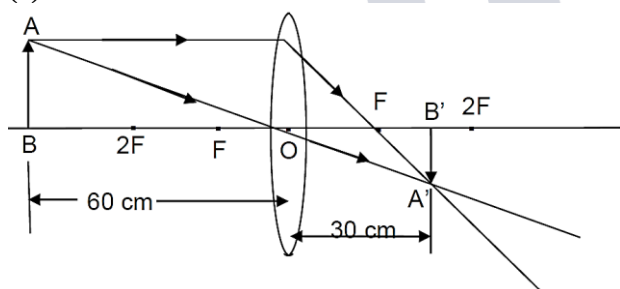
22. (a) $f = 20 \text{ cm}$

Sl. No. 3, Since $u = -40 \text{ cm}$ and $v = +40 \text{ cm}$, it may be concluded that object is at $2F$

(b) Sl. No. 6

When $u = -15 \text{ cm}$, the object is between optical centre and principal focus. So image is virtual and it forms on the same side as the object. Hence, v should be $-ve$, but here it is $+ve$ ($+120 \text{ cm}$)

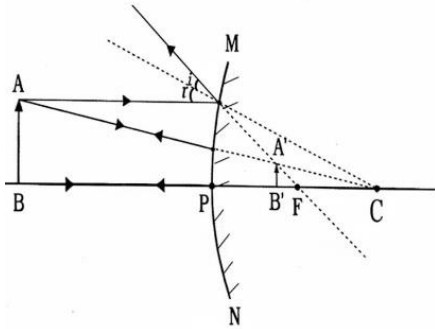
(c)



Direction of rays

$$\text{Magnification, } m = \frac{v}{u} = \frac{30 \text{ cm}}{-60 \text{ cm}} = -0.5 / -\frac{1}{2}$$

23. (a) Convex / diverging mirror)



Direction of rays

Use:- As a rear view mirror / any other use

Reason :- Always give erect and diminished image / Large field of view

(b) The radius of the sphere of which the mirror forms a part / The distance between pole and center of curvature of a mirror.

Nature of the mirror - convex / diverging mirror

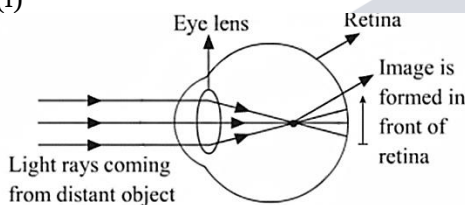
$$R = 2f = 24 \text{ cm}$$

$$\therefore f = +12 \text{ cm}$$

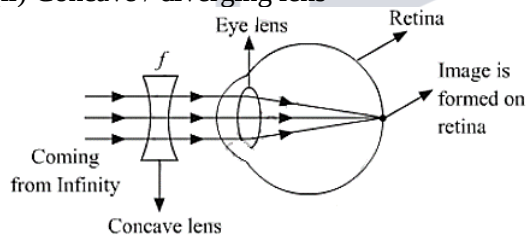
24. (a) • excessive curvature of the eye lens

• elongation of the eyeball

(i)



(ii) Concave / diverging lens



(b) $f = -5 \text{ m}$ (since lens is concave)

$$P = \frac{1}{f(\text{metre})}$$

$$P = -0.2\text{D}$$

SECTION-B

25. (d)

26.(c)

27. (d)

28. (b)

29.(c)

30. (d)

31. (d)

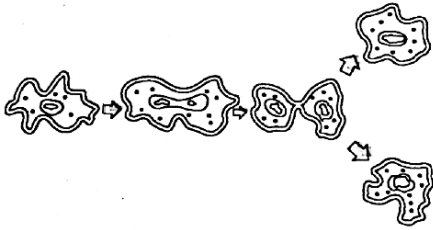
32. (b)

33. (c)

34. • Vegetable oil / fat and sodium hydroxide

• Red litmus paper turns blue.

35.



36. (a) When the flame is moved gradually towards the lens, u decreases. The screen has to be moved away from the lens.
- (b) Size of the image increases
- (c) Intensity / brightness of the image decreases
- (d) No distinct image is formed. Only a patch of light is seen.

