CLASS X (2020-21)
SCIENCE (CODE 086)
SAMPLE PAPER-2

Time : 3 Hours **Maximum Marks : 80**

General Instructions :

(i) The question paper comprises four sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each. These questions contain multiple choice questions (M
CQs), very short answer questions and assertion - reason type questions. Answers to these should be given in one word or one sentence.

(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should in the range of 30 to 50 words.

(iv) Section–C - question no. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should in the range of 50 to 80 words.

(v) Section–D – question no. 34 to 36 are long answer type questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.

(vi) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

(vii)Wherever necessary, neat and properly labelled diagrams should be drawn

---

Section A

1. The pH of a sample of vegetable soup was found to be 6.5. How is this soup likely to taste? [1]

Ans : Sour

or

Why oxides of highly reactive metals cannot be reduced by carbon?

Ans :

It is because highly reactive metals themselves are good reducing agents, so they can't be reduced by carbon.

2. What is an alkali? [1]

Ans : An alkali is a base that dissolves in water.

3. Write two reasons responsible for the late discovery of noble gases. [1]

Ans :

a. They are inert i.e., least reactive.
b. They are less abundant in nature except Argon.

4. Why sky appears dark to the passengers flying at high altitudes? [1]

Ans :

There is no atmosphere at high altitudes. Hence no scattered light can reach to the eye.

5. Explain why we see the sign AMBULANCE front of the some vehicles. [1]

Ans :

Because the image of laterally inverted written letter will once again laterally inverted in the rear view mirror of the vehicle going ahead and image so produced will be erect image of the word AMBULANCE.

6. Name a mirror that can give an erect and enlarged image of an object. [1]

Ans :

Concave mirror

or

Light enters from air to glass having refractive index 1.50. What is the speed of light in glass? Speed of light in air is 3×10^8 m/s.

Ans :

Speed of light in glass,

$$v = \frac{c}{n} = \frac{3 \times 10^8}{1.5} = 2 \times 10^8 \text{ m/s}$$

7. If field lines of a magnetic field are crossed at a point, what does it indicate? [1]

Ans :

If the magnetic field lines would cross each other then at the same point there would be two directions of magnetic field which is not possible.

8. What type of core is used to make an electromagnet? [1]

Ans :

Soft iron core is used in making an electromagnet.

9. Power of a lamp is 60 W. Find the energy in joules consumed by it in 1 s. [1]

Ans :

Given, $P = 60\,\text{W},\ t = 1\,\text{s}$

Energy, $E = (VI)t$

$E = P \times t = 60 \times 1\,\text{J}$

$E = 60\,\text{J}$

or

Why do we use copper and aluminium wire for transmission of electric current?

Ans :

Copper and aluminium wires are used for electric transmission due to their low resistivity.

10. Write the role of motor areas in brain. [1]

Ans :

Motor areas of the brain control the movement of voluntary muscles.

11. Why is respiration considered an exothermic process? [1]

Ans :

Respiration is considered an exothermic process due to breaking down of glucose/food in the presence of oxygen with release of energy.

or

What role do digestive enzymes play in the alimentary canal?

Ans :

Digestive enzymes break down complex molecules of food into simpler ones so that they can be absorbed by blood.

12. How can the chromosomes be identified? [1]

Ans :

In human beings, the individual chromosomes are identified by their lengths, position of centromere and banding pattern on staining.

or

A normal baby girl receives her X chromosome from whom : mother, father, both mother and father or either from mother or father?

Ans :

From both mother and father.

13. How is spinal cord protected? [1]

Ans :

Vertebral column made by vertebrae protects the spinal cord.

For question numbers 14, 15 and 16, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c)and (d) as given below :

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true.

14. **Assertion**: Magnesium ribbon should be cleaned before burning in air.
Reason: Magnesium ribbon is coated with a thin layer of dust containing moisture. [1]

Ans : (b) Assertion is true but reason is false.

15. **Assertion :** Food cans are coated with tin and not with zinc.
Reason : Zinc is more reactive than tin. [1]

Ans : (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

Food cans are coated with tin not with zinc because zinc is more reactive than tin, it can react with organic acids present in food.

or

Assertion : Platinum, gold and silver are used to make jewellery.
Reason : Platinum, gold and silver are least reactive metals.

Ans : (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

Platinum, gold and silver are highly malleable lustraus and least reactive, i.e. noble metals, so they are not corroded by air and water easily.

16. **Assertion :** A network of food chains existing together in an ecosystem is known as food web.
Reason : An animal like kite cannot be a part of a food web. [1]

Ans : (c) Assertion (A) is true but reason (R) is false.

In the food web different food chains are interconnected. Each chain consists of different trophic levels i.e., producers, consumers and detrivoroes. So, kite can also be a part of food web

17. Read the following and answer any four question from (17.1) to (17.5) : 1 × 4

Metal	Iron (II) Sulphate	Copper (II) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	---	---
B	Displacement	---	No reaction	---
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

17.1 The most active metal is
(a) A (b) B
(c) C (d) D

Ans : (b) *B* is most reactive metal. *B* can displace iron whereas no other metal can do.

17.2 The least reactive metal is
(a) A (b) B
(c) C (d) D

Ans : (d) *D* is least reactive metal.

17.3 The increasing order of reactivity of metal A, B, C and D is
(a) $A < B < C < D$ (b) $D < C < B < A$
(c) $D < A < C < B$ (d) $D < C < A < B$

Ans : (d) $D < C < A < B$

17.4 Container of which metal can be used to store both zinc sulphate solution and silver nitrate solution?
(a) A (b) C
(c) B (d) D

Ans : (d) Container of *D* can be used to store both

zinc sulphate solution and silver nitrate solution.

17.5 The metal which shows the displacement with iron (II) zulphate.

(a) A (b) C

(c) D (d) B

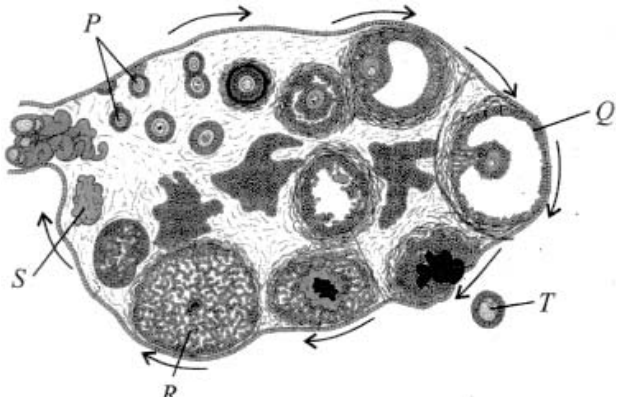
Ans : (d) B

18. Read the following and answer any four question from (18.1) to (18.5) : 1 × 4

The ovary is a ductless reproductive gland in which the female reproductive cells are produced. Females have a pair of ovaries, held by a membrane beside the uterus on each side of the lower abdomen. The ovary is needed in reproduction since it is responsible for producing the female reproductive cells, or ova.

The ovary is a ductless reproductive gland in which the female reproductive cells are produced. Females have a pair of ovaries, held by a membrane beside the uterus on each side of the lower abdomen. The ovary is needed in reproduction since it is responsible for producing the female reproductive cells, or ova.

During ovulation, a follicle (a small cavity in the ovary) expels an egg under the stimulation of gonadotropic hormones released by the pituitary gland, the luteinizing hormone and the follicle-stimulating hormone. The rest of the follicle, or the corpus luteum, secretes the sex hormones estrogen and progesterone, which regulate menstruation and control the development of the sex organs. The sex hormones and the gonadotropic hormones interact with each other to control the menstrual cycle



18.1 Which of the following statements is correct regarding the labelled structures?

(a) Before puberty, only structure T undergoes meiosis.

(b) The hormone produced by structure R stimulates the pituitary gland to secrete luteinsing hormone.

(c) The hormone produced by structure S is responsible for the development of female secondary sexual characters.

(d) The hormone produced by P and Q stimulates the proliferation of the endometrial lining of the uterine wall.

Ans : (d) In the given figure of human ovary, P is primary follicle, Q is mature Graafian follicle, R is corpus luteum, S is corpus albicans and T is secondary oocyte. Secondary oocyte (T) is formed only after puberty in a menstrual cycle (one in each cycle). The corpus luteum (R) is developed under the effect of production of luteinising hormone (LH) from pituitary gland. The hormone progesterone secreted by it, maintains the uterine endothelium and stimulates secretion of water mucus from uterine glands. Corpus albicans (S) secretes no hormone. P (primary follicle) and Q (Graafian follicle) secrete estrogen which stimulates the proliferation of endometrial lining of the uterine wall.

18.2 The formation of T begins in female

(a) at birth (b) before birth

(c) after puberty (d) none of these

Ans : (b) The formation of ova begins in female fetus before birth.

18.3 The term used for release of T is?

(a) Ovulation (b) Proliferation

(c) Fragmentation (d) Fission

Ans : Ovulation

18.4 Which the hormone secreted by R is?

(a) Progesterone (b) Trilodothyronine

(c) Thysoxine (d) Cortisol

Ans : (a) R (Corpus luteum) secretes the hormone progesterone.

18.5 The name of part R is

(a) Ovum (b) Oviduct

(c) Corpus luteum (d) Medulla

Ans : (c) Corpus luteum

19. Read the following and answer any four question from (19.1) to (19.5) : 1 × 4

Convex mirror is used as a rear view mirror in vehicles. Since the image of the object formed is small in size, the field of view is increased. Convex mirror is also used in street lights to diverge light over a large area.

19.1 The nature of image in driver's mirror is-

(a) Erect and diminished

(b) Virtual and undiminished

(c) Erect and magnified

(d) Virtual and magnified

Ans : (a) Erect and diminished

19.2 A person standing in front of a mirror finds his image thinner but with normal height. This implies that the mirror is

(a) convex and cylindrical with axis vertical

(b) convex and cylindrical with axis horizontal
(c) convex and spherical
(d) concave and spherical

Ans : (a) convex and cylindrical with axis vertical

19.3 A convex mirror is used to form the image of an object. Then which of the following statement is wrong.
(a) The image lies between the pole and the focus.
(b) The image is diminished in size.
(c) The image is erect.
(d) The image is real.

Ans : (d) The image is real.

19.4 The field of view of convex mirror is ..... as compared to plane mirror.
(a) large (b) small
(c) equal (d) none of these

Ans : (a) large

19.5 $f = \frac{R}{2}$ is valid
(a) for convex mirrors but not for concave mirrors
(b) for concave mirrors but not for convex mirrors
(c) for both convex and concave mirrors
(d) neither for convex mirrors not for concave mirrors.

Ans : (c) for both convex and concave mirrors

20. The following table given below shows the resistivity of three materials X, Y and Z. Analyse the table and answer the following questions : 1×4

Samples	X	Y	Z
Resistivity	3×10^{-9}	11.1×10^{-6}	18×10^{-17}

20.1 The increasing order of conductivity of samples is
(a) $Y < X < Z$ (b) $X < Y < Z$
(c) $Z < X < Y$ (d) $Z < Y < X$

Ans : (a) $Y < X < Z$

20.2 The best conductor is
(a) X (b) Y
(c) Z (d) X and Y

Ans : (c) Z

20.3 Which are these is best insulator?
(a) X (b) Y
(c) Z (d) None of these

Ans : (b) Y

Y is the best insulator as it has highest value of resistivity. A bad conductor has high resistivity.

20.4 Electrical resistivity of a given metallic wire depends upon :
(a) Its length
(b) Its thickness
(c) Its shape
(d) Nature of the material

Ans : (d) Nature of the material

The resistivity of a material depends on the nature and the temperature of the conductor, but not its shape and size.

20.5 In the following material, which has the low resistivity-
(a) Copper (b) Iron
(c) Mercury (d) None & these

Ans : (a) Copper

Section B

21. What is the importance of DNA copying in reproduction? Why is variation beneficial to the species but not necessary for the individual? Explain. [2]

Ans :

DNA copying is essential part of reproduction because it ensures that same blueprint of the body design is maintained. Variation for the species is beneficial for adaptation and better survival. It may result in new species formation.

or

a. "Recent fossils are found closer to the earth's surface". Comment on the statement stating reason.
b. List two factors which could lead to the rise of new species.

Ans :

a. This statement is correct as the fossils found closer to the surface of earth are more recent and those found in deeper layers are older ones.
b. Natural selection and genetic drift.

22. Differentiate between auricles and ventricles. [2]

Ans :

	Auricle	**Ventricle**
1.	Upper thin walled chambers.	Lower thick walled chambers.
2.	Receive blood from veins.	Receive blood from the auricles
3.	Push blood into the ventricles.	Push blood into the arteries.

23. A compound Z is formed by transfer of electrons from the metal X to a non-metal Y, Identify the type of bond formed in the compound. List three properties of compound formed by such type of bonds. [2]

Ans :

The bond formed is ionic bond:
a. The compound will have high melting and boiling point.
b. It will be soluble in water.
c. It will conduct electricity in molten state as well as in aqueous solution.

or

Give reason for the following:
a. School bells are made up of metals.
b. Electrical wires are made up of copper.

Ans :

a. Metals are sonorous i.e., produce sound when struck with a hard substance.
b. Copper is a good conductor of electricity and is

highly ductile.

24. In the following table, seven elements A, B, C, D, E, F and G (here letters are not the usual symbols of the elements) of the Modern Periodic Table with atomic numbers 3 to 18 are given: [2]

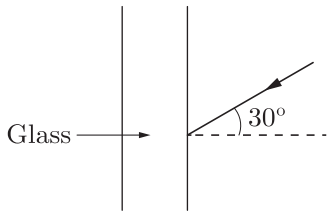
3	4	5	6	7	8	9	10
A					E		G
11	12	13	14	15	16	17	18
B	C		D			F	

i. Which of these is (a) a noble gas, (b) a halogen?
ii. If B combines with F, what would be the formula of the compound formed?

Ans :

(i) (a) Since, G has atomic number 10 hence, it is a noble gas i.e., neon.
(b) Since, F has atomic number 17 hence, it is a halogen i.e., chlorine.
(ii) Since, the valency of B and F is one hence, BF will be the formula of the compound formed.

25. Figure shows a ray of light meeting the glass of the window of a car at angle of incidence of 30°. [2]



i. Assuming that the refractive index of glass is 1.5, find the angle of refraction for this ray in the glass. (Given : $\sin(19.5^\circ) = 1/3$)
ii. Complete the diagram by sketching the path of the ray through the glass and out on the other side.

Ans :

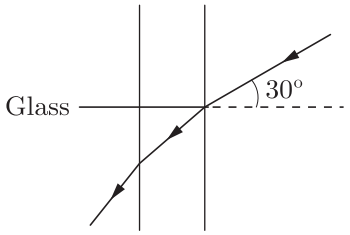
i. Applying Snell's law, let r be the angle of refraction.

Given, $i = 30^\circ,\ n = 1.5$

Refractive index, $n = \dfrac{\sin i}{\sin r}$

$$\sin r = \frac{\sin i}{n} = \frac{\sin 30^\circ}{1.5}$$
$$r = 19.5^\circ$$

ii.



26. A bulb is rated at 5.0 V, 100 mA. Calculate its (a) power and (b) resistance. [2]

Ans :

Given,

Rating of bulb, $V = 5.0$ Volt.

$$I = 100\,\text{mA}$$
$$I = 100 \times 10^{-3}\,\text{A}$$
$$I = 0.1\,\text{A}$$

a. Power of bulb $= V \times I$

$$P = 5.0 \times 0.1\,\text{W}$$
$$P = 0.5\,\text{W}$$

b. $V = IR,$

$$R = \frac{V}{I}$$
$$R = \frac{5.0}{0.1}\Omega$$
$$R = 50\,\Omega$$

Section C

27. How does control and coordination take place in plants? [3]

Ans :

The function of control and coordination in plants is performed by chemical substances known as plant hormones or phytohormones.

The synthesis and action of phytohormones are greatly influenced by external stimuli. Plants respond to photoperiodic stimulus by specialised pigment present in very small quantity called phytochrome. Thus, phytohormones and phytochromes together are involved in control and coordination between the environment and plant responses.

or

Explain the process of break down of glucose in a cell (i) in the presence of oxygen (ii) in the absence of oxygen.

Ans :

i. **In the presence of oxygen** : In all the pathways, the first step in break down of glucose, a six carbon molecule, into a three carbon molecule called pyruvate. This process occurs in the cytoplasm of the cell. In aerobic respiration break down of pyruvate using oxygen takes place in mitochondria. It breaks up the three carbon pyruvate molecule to give three molecules of carbon dioxide, water and lots of energy as compared to anaerobic respiration.

$$\text{Glucose} \xrightarrow[\text{In cytoplasm}]{\text{Glycolysis}} \text{Pyruvic acids}$$

$$\xrightarrow[\text{In mitochondria } O_2 \text{ is required}]{\text{Kreb's cycle}} CO_2 + H_2O + \text{energy}$$

ii. **In the absence of oxygen** : In the absence of oxygen pyruvate may be converted into ethanol and carbon dioxide which is referred to as fermentation that takes place in yeast.

$$\text{Glucose} \xrightarrow[\text{In cytoplasm}]{\text{Glycolysis}} \text{Pyruvic acids}$$

$$\xrightarrow[\text{in the absence of oxygen}]{\text{In yeast}} C_2H_5OH + CO + \text{energy}$$

Sometime anaerobic respiration also occurs in our

muscle cells, when there is lack of oxygen, i.e., during vigorous muscular activities. At that time pyruvate is converted into lactic acid which is also a three carbon molecule. This build-up of lactic acid in our muscles causes fatigue or muscular cramps.

$$\text{Glucose} \xrightarrow[\text{In cytoplasm}]{\text{Glycolysis}} \text{Pyruvic acids}$$

$$\xrightarrow[\text{Inn the absence of oxygen}]{\text{In muscles}} \text{Lactic acid + energy}$$

28. i. Write the chemical formula for washing soda.
ii. How may it be obtained from baking soda?
iii. Name an industrial use of washing soda other than washing clothes. [3]

Ans :

i. The chemical formula of washing soda is $Na_2CO_3 \cdot 10H_2O$.

ii. Baking soda ($NaHCO_3$) is strongly heated to form soda ash.

$$2NaHCO_3(s) \xrightarrow{\text{heat}} Na_2CO_3 + H_2O(l) + CO_2(g)$$

The soda ash is dissolved in boiling hot water so as to obtain its saturated solution. The saturated solution so obtained is allowed to cool, when washing soda crystals separate out.

$$Na_2CO_3 + 10H_2O \longrightarrow Na_2CO_3 \cdot 10H_2O$$

iii. Washing soda is used in the manufacture of glass.

29. What are plant hormones? Give its examples. [3]

Ans :

In plants, certain chemical substances are necessary for the purpose of proper growth and development. These chemical substances are called plant hormones or phytohormones. These are the most important coordinating substances in plants.
Examples : Auxin, gibberellin, cytokinin, ethylene, and abscisic acid.

30. Name the hormones secreted by the following endocrine glands and specify one function of each: [3]
(a) Thyroid (b) Pituitary (c) Pancreas

Ans :

a. **Thyroid :** Secretes Throxine. It regulates metabolism of carbo¬hydrates, fats and proteins.
b. **Pituitary :** Secretes growth harmone. Growth harmone regulates growth and development of body.
c. **Pancreas :** Secretes insulin. Insulin lowers blood sugar level.

31. Write an equation each for decomposition reactions, where energy is supplied in the form of heat, light or electricity. [3]

Ans :

i. Energy is supplied in the form of heat during the decomposition of ferrous sulphate crystals.

$$2FeSO_4(s) \xrightarrow{\text{heat}} Fe_2O_3(s) + SO_2(g) + SO_3(g)$$

ii. Energy is supplied in the form of light, when silver iodide decomposes to form silver and iodine.

$$2AgI(s) \xrightarrow{\text{light}} 2Ag(s) + I_2(s)$$

iii. Energy is supplied in the form of electricity, when molten lead bromide decomposes to lead and bromine.

$$PbBr_2(l) \xrightarrow{\text{electricity}} Pb(s) + Br_2(l)$$

32. Out of the elements H(1), Be(4), Na(11) and Mg(12).
i. Write the pair of elements having similar chemical properties.
ii. State the group number of each pair,
iii. Name one another element belonging to each of these groups. [3]

Ans :

i. Be(4) and Mg(12) have similar chemical properties. H(1) and Na(11) have similar chemical properties.
ii. Be and Mg belong to group 2, H and Na belong to group 1.
iii. K belongs to group 1 and Ca belongs to group 2.

33. i Name and define SI unit of resistance.
ii. Calculate the resistance of a resistor if the current flowing through it is 200 mA, when the applied potential difference is 0.8 V. [3]

Ans :

i. SI unit of resistance is ohm (Ω)

$$1\,\Omega = \frac{1\,V}{1\,A}$$

The resistance of a conductor is said to be 1 ohm if a current of one amp flows through it when a potential differences of 1 volt is applied across it.

ii. Given,

$$\text{Current, } I = 200\,mA = 200 \times 10^{-3} A$$

$$\text{Potential difference, } V = 0.8\,V$$

As we know that,

$$R = \frac{V}{I} = \frac{0.8}{200 \times 10^{-3}} = 4\,\Omega$$

Section D

34. A carbon compound 'P' on heating with excess conc. H_2SO_4 forms another carbon compound 'Q' which on addition of hydrogen in the presence of nickel catalyst forms a saturated carbon compound 'R'. One molecule of 'R' on combustion forms two molecules of carbon dioxide and three molecules of water. Identify P, Q and R and write chemical equations for the reactions involved. [5]

Ans :

P =Ethanol (C_2H_5OH)
Q =Ethene (CH_2=CH_2)
R =Ethane (C_2H_6)

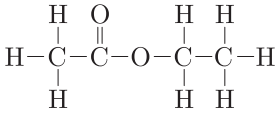
$$\underset{\text{Ethanol}}{C_2H_5OH} \xrightarrow[443\,K]{\text{Conc. } H_2SO_4} \underset{\text{Ethene}}{CH_2 = CH_2} + H_2O$$

$$CH_2 = CH_2 \xrightarrow[H_2]{\text{Nickel catalyst}} \underset{\text{Ethane}}{C_2H_6}$$

$$C_2H_6 + \frac{7}{2}O_2 \longrightarrow 2CO_2 + 3H_2O$$

or

Answer the following:
i. The structural formula of an ester is :



Write the structural formulae of the corresponding alcohol and the acid.

ii.

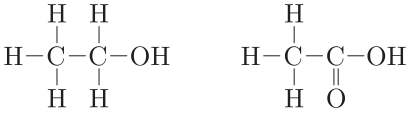
(a) Mention the experimental conditions involved in obtaining ethene from ethanol.

(b) Write the chemical equation for the above reaction.

iii. Explain the cleansing action of soap.

Ans :

i.



Ethyl alcohol Acetic acid

ii.

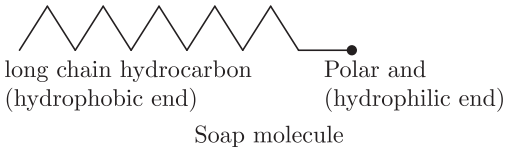
(a) When ethanol is heated with excess of concentrated sulphuric acid at 443 K, it gets dehydrated to form ethene.

(b) $C_2H_5OH + \underset{(Conc.)}{H_2SO_4} \xrightarrow{443\,K} \underset{ethene}{H_2C = CH_2} + H_2O$

iii. A molecule of soap is made up of two parts:

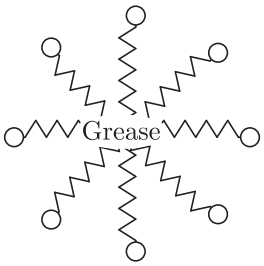
(a) An ionic part which is hydrophilic, i.e, water soluble.

(b) A hydrocarbon chain which is hydrophobic i.e., water-repelling and oil soluble.



Soap molecule

When soap is at the surface of water, the hydrophobic tail protrudes out of water while the ionic end remains inside water. Inside water, the molecules form clusters with the hydrophobic tails in the interior of the cluster and the ionic ends on the surface of the cluster. This formation is called a micelle. Soap, in the form of micelle collects the oily dirt in the centre of the micelle. The micelles stay in solution as a colloid and do not precipitate due to ion-ion repulsion. Thus, the dirt suspended in water is washed away during rinsing.



A micelle entrapping grease particle

35. Answer the following: [5]

i. How is zygote formed?

ii. State the function of placenta in the mother's body.

iii. At what interval the egg is formed in human female ovary?

iv. Name two STDs caused by bacterial infection.

v. Why is prenatal sex determination prohibited?

Ans :

i. Zygote is formed by the fusion of male and female gamete.

ii. Placenta is a special tissue through which the developing embryo/foetus gets nutrition from mother's blood. It also transports wastes of the embryo into mother's blood.

iii. Ovulation releases mature ovum from the ovary. It happens once during a menstrual cycle that is for roughly 28 days.

iv. STDs caused by bacterial infection are Gonorrhoea and Syphilis.

v. Prenatal sex determination is misused and it may be the reason for female foeticide.

36. It is desired to obtain an erect image of an object, using concave mirror of focal length of 12 cm. [5]

i. What should be the range of distance of an object placed in front of the mirror?

ii. Will the image be smaller or larger than the object. Draw ray diagram to show the formation of image in this case.

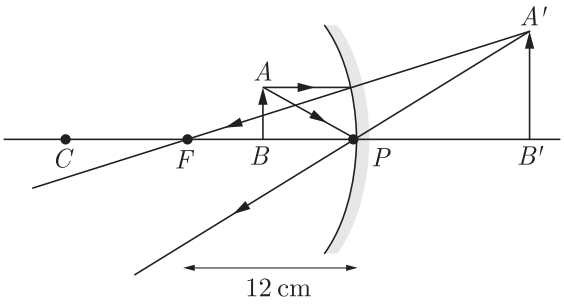
iii. Where will the image of this object be formed, if it is placed 24 cm in front of the mirror? Draw ray diagram for this situation also to justify your answer.

Show the positions of pole, principal focus and the centre of curvature in the above ray diagrams.

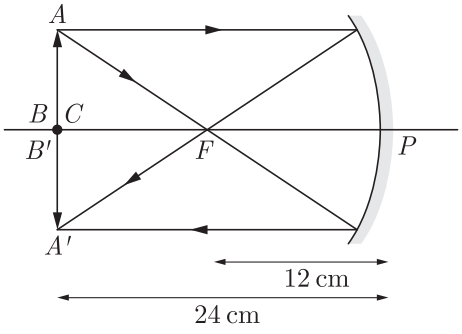
Ans :

i. Range of distance of an object–between pole (0 cm) and focus (<12 cm).

ii. The image will larger than the object.



iii. Image also at 24 cm in front of the mirror.



or

i. Define real image of an object.

ii. Name the mirror that

(a) can give real as well as virtual image of an object.

(b) will always give virtual image of same size of an object.

(c) will always give virtual and diminished image of an object.
(d) is used by a doctor in examining teeth.

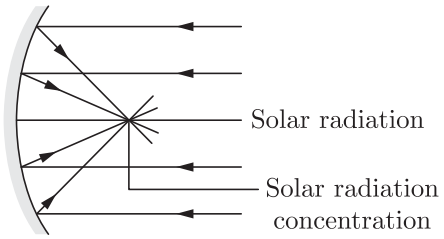
iii. With the help of a ray diagram explain the use of concave mirror as solar concentrators.

Ans :

i. Real image of an object is the image formed due to actual intersection of light rays coming from object through an optical device. It can always be taken on screen.

ii.
(a) concave mirror
(b) plane mirror
(c) convex mirror
(d) concave mirror

iii. Concave mirrors can concentrate parallel light ray (from distant objects e.g. sun) at the focus as shown in figure.



This property of the concave mirror is used in solar contractors (for e.g. solar cookers) as high concentration of sun rays generate high amount of heat which farther can used as a heat source.