

# Sample Question Paper

Fully Solved (Question-Solution)

## SCIENCE

A Highly Simulated Practice Question Paper for CBSE Class X  
Term II Examination (SA II)

Time : 3 Hours

Max. Marks : 90

### General Instructions

1. The question paper comprises of two sections A and B. You are to attempt both the sections. All questions are compulsory.
2. All questions of section A and all questions of section B are to be attempted separately.
3. Question numbers 1 to 3 in section A are 1 mark questions. These are to be answered in one word or one sentence.
4. Question numbers 4 to 7 are 2 marks questions to be answered in about 30 words.
5. Question numbers 8 to 19 are 3 marks questions to be answered in about 50 words.
6. Question numbers 20 to 24 are 5 marks questions to be answered in about 70 words.
7. In section B, question numbers 25 to 42 are multiple choice questions based on practical skills. Each question is a 1 mark question. You are to select one most appropriate response out of the four provided to you.

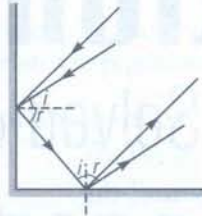
### Section A

- Q1.** Give the name and molecular formula of a higher homologue of propane.
- Sol.** Each member of a homologous series differs from its preceding and succeeding member by a  $-\text{CH}_2$  group. Hence, a higher homologue of propane  $\text{C}_3\text{H}_8$  is butane ( $\text{C}_4\text{H}_{10}$ ). (1)
- Q2.** A person cannot see objects kept beyond 2 m distinctly. Find the power of correcting lens.
- Sol.** A concave lens of focal length,  $f = 2 \text{ m}$ , will bring the image back on to the retina and the defect is corrected. So, required power of lens is  $P = 1/f = 1/-2 = -0.5 \text{ D}$ . (1)
- Q3.** What is biological magnification?
- Sol.** The increase in the concentration of harmful chemicals such as fertilisers and pesticides in the living organisms at each trophic level through a food chain is known as biological magnification. (1)
- Q4.** What is a metalloid? Name any two of them.
- Sol.** There are some elements which exhibit the properties of both metals and non-metals. These are called metalloids. e.g., silicon and boron. (1+1)

STAGE I

**Q5.** Under what condition in an arrangement of two plane mirrors, incident ray and reflected ray will always be parallel to each other, whatever may be angle of incidence? Show the same with the help of a diagram.

**Sol.** When two plane mirrors are placed at right angle to each other, incident ray and reflected ray will always be parallel to each other, whatever may be the angle of incidence.  
This is shown in the diagram below



**Q6.** The following table lists a few functions/phrases/statements in column A. Match these items in column A to the corresponding terms in column B. Note, that more than one item in column A may match with the same item in column B.

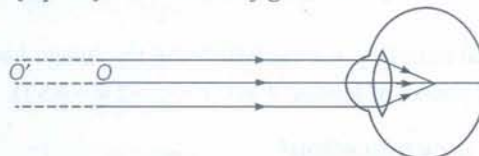
	Column A	Column B
A <sub>1</sub>	The ability of the eye to focus both near and distant objects, by adjusting its focal length.	B <sub>1</sub> Myopia
A <sub>2</sub>	Cells on this part generate electrical signals.	B <sub>2</sub> Dispersion
A <sub>3</sub>	Splitting of white light into its component colours.	B <sub>3</sub> Power of accommodation
A <sub>4</sub>	Corrected by using concave lenses.	B <sub>4</sub> Retina
A <sub>5</sub>	Loses at old age.	

**Sol.** (A<sub>1</sub>→B<sub>3</sub>), (A<sub>2</sub>→B<sub>4</sub>), (A<sub>3</sub>→B<sub>2</sub>), (A<sub>4</sub>→B<sub>1</sub>), (A<sub>5</sub>→B<sub>3</sub>)

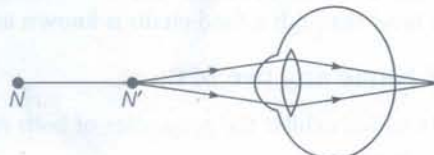
- Myopia (short-sightedness—the image of distant objects is focussed before the retina) is corrected by using a concave lens of suitable power.
- Dispersion of light is the phenomenon of splitting of white light into its constituent seven colours on passing through a glass prism.
- The ability of the eye to focus both near and distant objects, by adjusting its focal length, is called the accommodation of the eye which loses at old age.
- The part of the eye that responds to light by generating a small electrical signal is the retina.

**Q7.** Draw ray diagrams of each showing  
(a) myopic eye and (b) hypermetropic eye.

**Sol.** (a) The diagram of myopic eye is shown in figure below



(b) The diagram of hypermetropic eye is shown in figure below



**Q8.** A mother always wants her child to drink milk. As it is a boon for health. If one do not drink milk, he can face severe health problems.

Answer the following questions on the basis of above text

- Name the major constituent/nutrient present in the milk.
- Write the chemical symbol, atomic number and valency of that nutrient.
- What value do you infer from the given text?

**Sol.** (a) Calcium (1/2)

(b) Chemical symbol of calcium—Ca, Atomic number of calcium—20,  
Valency of calcium—2 (1 1/2)

(c) Values like knowledge and concern for the health is inferred from the given text. (1)

**Q9.** Table given below shows a part of the Periodic Table.

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Using this table, explain why?

- Lithium and sodium are considered as active metals.
- Atomic size of magnesium is less than that of sodium.
- State a chemical property common to fluorine and chlorine.

**Sol.** (a) Lithium and sodium have one electron in their valence shell. They form  $\text{Li}^+$  and  $\text{Na}^+$  ions by losing their one electron easily and attain the nearest noble gas configuration. Hence, lithium and sodium are active metals. (1)

(b) Sodium and Magnesium belong to same period. On moving from left to right in a period of the Periodic Table, nuclear charge increases but shells remain the same. Due to which, electrons of the outermost shell are pulled closer to the nucleus and this makes the atomic size to decrease. (1)

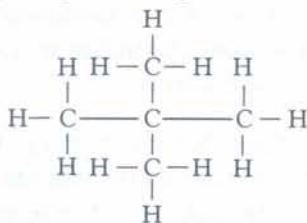
(c) Both fluorine and chlorine have one electron less to complete their octet. Hence, both of them have the valency of one. (1)

**Q10.** (a) What is catenation?

- Write the structural formula of *neo*-pentane.
- Write any two isomers of heptane ( $\text{C}_7\text{H}_{16}$ ).

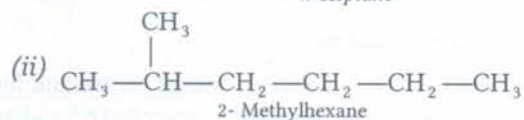
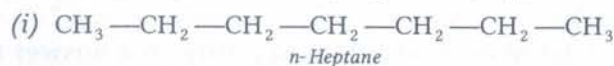
**Sol.** (a) The property of an element to form long chains of its own atoms is called catenation. Carbon has the unique tendency of catenation. (1)

(b) The structural formula of *neo*-pentane is given below



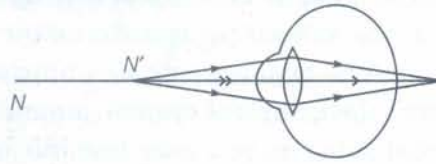
(1)

(c) The examples of two isomers of heptane ( $\text{C}_7\text{H}_{16}$ ) are



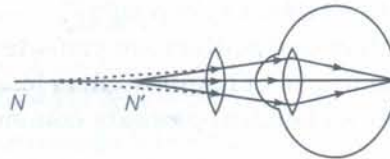
(1 1/2 x 2)

**Q11.** Study the diagram given below and answer the following questions



- Name the defect of vision depicted in the diagram.
- List two causes of the above defect.
- Draw a ray diagram for the correction of the above defect using an appropriate lens.

- Sol.** (a) The defect of vision depicted in the diagram is hypermetropia because image is formed behind the retina. (1)
- (b) The two causes of the above defect are
- Focal length of the eye lens is too long.
  - The eyeball becomes too small. ( $\frac{1}{2} \times 2$ )
- (c) The diagram for correction of the hypermetropia is



(1)

**Q12.** Siddhi loves to spend time with her grandfather. One day, she marked that her grandfather has been facing partial loss of vision and the crystalline lens of his eye has become milky and cloudy. She reported the case to her father. Her grandfather undergoes eye surgery as per the advice of eye specialist. She is happy that her grandfather now, could pursue his passion for reading and writing.

Read the passage given above and answer the following questions

- Name the eye defect Siddhi's grandfather is suffering from. What is the possible cure for this eye defect?
- Name the ability of the eye lens to adjust its focal length.
- What value(s) is/are shown by Siddhi?

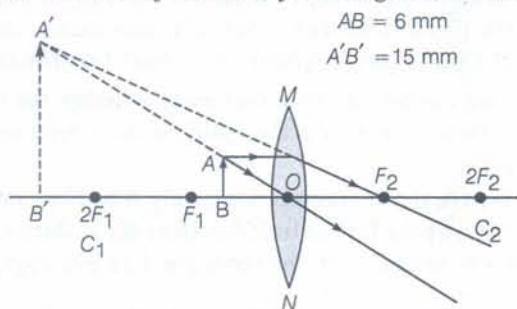
- Sol.** (a) As per the situation described in the question, Siddhi's grandfather is suffering from cataract. It is possible to cure this defect and restore vision through a cataract surgery. (1)
- (b) The ability of the eye lens to adjust the focal length to view the objects at different positions is called accommodation. (1)
- (c) The values shown by Siddhi are respect, love, concern and caring attitude for elders and sense of responsibility. (1)

**Q13.** A lens produces an erect image of size 15 mm, when an object of size 6 mm is placed 15 cm from its optical centre.

- What is the nature of the lens?
- What can we say about the position of the object to get an image of the type given?
- Draw the relevant diagram to justify your answer to the above question.

- Sol.** (a) The nature of the lens is convex. (1/2)
- (b) The position of the object lies between optical centre and focus of convex lens, to get an image of the type given; as the image is erect, enlarged and on the same side of object. (1)

(c) Relevant diagram to show the formation of the image in case as said in question is given below

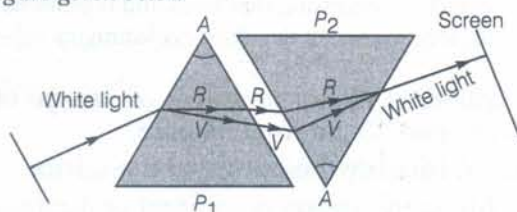


(1½)

**Q14.** How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw the diagram.

**Sol.** A narrow beam of white light incident on one prism emerges out as white light when we place a second identical prism in an inverted position with respect to the first prism. (1½)

This is shown in the figure given below



(1½)

**Q15.** (a) What is a 'biodiversity hotspot'?  
(b) Suggest any two ways to conserve forests.

**Sol.** (a) A 'biodiversity hotspot' is an area having large number of endemic species which are being threatened with extinction. (1)

(b) The two ways to conserve forests are

(i) **Silviculture** Aforest the forest areas, where a large number of trees have been cut.

(ii) **Take help of local people** Local people can help in conserving forests. (1×2)

**Q16.** What is reproduction? Mention the importance of DNA copying in reproduction.

**Sol.** The process of producing new organisms from the existing organisms of the same species is called reproduction. (1)

Importance of DNA copying in reproduction are

(i) It can be inherited by the progeny.

(ii) The process of DNA copying brings some variations which are useful for survival of the species. (1×2)

**Q17.** List three differences between pollination and fertilisation.

**Sol.** The three differences between pollination and fertilisation are

S.No.	Pollination	Fertilisation
(i)	It is a process of transfer of pollen grain from anther to stigma of a plant.	It is a process of fusion of male gamete and female gamete in the formation of zygote.
(ii)	It facilitates formation of pollen tube which carries the male gamete to the female gamete i.e., ovule.	It facilitates development of zygote into a seed which contains the embryo.
(iii)	It is a physical process.	It is a biological process i.e., (physio-chemical).

(1×3)

**Q18.** A study found that children with light coloured eyes are likely to have parents with light coloured eyes. On this basis, can we say anything about whether the light eye colour trait is dominant or recessive? Why or why not?

**Sol.** No, we cannot say with certainty whether the light colour of eye is dominant or recessive. Since, both parents and the children have light eye colour, the probability is that the trait is recessive.

A recessive trait expresses itself only when an individual possesses both the recessive alleles. Parents are pure for the trait therefore the children possess the trait. If the light eye colour had been a dominant trait, the recessive dark eye colour would have appeared. (3)

**Q19.** (a) What are fossils? What do they tell us?

(b) Explain the importance of fossils in deciding evolutionary relationships.

**Sol.** (a) The remains or impressions of dead animals or plants that lived in the past are known as fossils. Their study helps us to know about evolution of species. (1½)

(b) Fossils provide evidence of past life and proof of organic evolution.

For example, a fossil called *Archaeopteryx* has feathered wings like birds, teeth and tail like reptiles, suggesting that birds and reptiles had a common ancestor. Therefore, fossils have an importance in deciding evolutionary relationship. (1½)

**Q20.** A spherical mirror produces an image 60 cm, in front of it, when an object is positioned 15 cm from its pole.

(a) (i) Identify the nature of the mirror.

(ii) Is the image magnified or diminished?

(iii) In the above situation,  $u = \dots\dots\dots$  cm and  $v = \dots\dots\dots$  cm.

(iv) State whether the image formed is real or virtual.

(b) Draw the ray diagram, showing the formation of the image in the above case.

(c) Calculate the magnification of the image.

or

(a) Define real image of an object.

(b) Give the name of the mirror that

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

(ii) will always give virtual and diminished image of an object.

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

(iv) is used by a doctor in examining teeth.

(c) With the help of ray diagram, explain the use of concave mirror as solar concentrator.

**Sol.** A real and inverted image can be formed in front of a spherical concave mirror. Since, image is farther than object from mirror, therefore, size of image is larger than size of object.

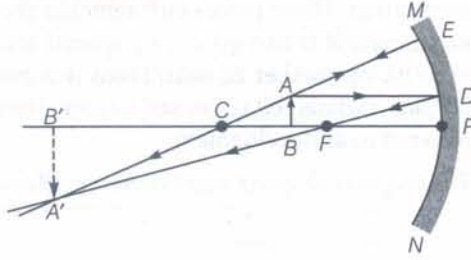
(a) (i) The nature of the mirror is concave.

(ii) The image is larger or magnified than object.

(iii) In the above situation,  $u = -15$  cm and  $v = -60$  cm.

(iv) The image formed is real. (1½ × 4)

(b) The ray diagram showing the formation of the image is shown below



① 1/2

(c) Here, Object distance,  $u = -15$  cm,

Image distance,  $v = -60$  cm, Magnification,  $m = \frac{h'}{h} = -\frac{v}{u} \Rightarrow m = -\left(\frac{-60}{-15}\right) = -4$

①

Negative sign indicates that image is inverted.

① 1/2

or

**Sol.** (a) Real image of an object is defined as the image formed because of actual intersection of light rays coming from an object through an optical device. It is always considered on screen. ①

(b) (i) The given mirror is concave mirror.

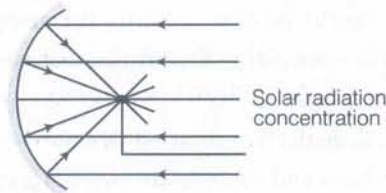
(ii) The given mirror is convex mirror

(iii) The given mirror is plane mirror

(iv) The given mirror is concave mirror

① 1/2 × 4

(c) The diagram given below is showing how the concave mirror can be used as a solar concentrator



①

The solar concentration is placed at the focus of a concave reflector. The concave reflector focuses the sun's rays on the concentration due to which it gets very hot. ①

**Q21.** (a) Identify the asexual method of reproduction in each of the following organisms

(i) Rose

(ii) Yeast

(iii) *Planaria*

(b) What is fragmentation? Name a multicellular organism which reproduces by this method.

or

Why are budding, fragmentation and regeneration all considered as asexual types of reproduction? With neat diagrams, explain the process of regeneration in *Planaria*.

**Sol.** (a) (i) Vegetative propagation by stem

(ii) Budding

(iii) Regeneration ③

(b) Fragmentation is asexual method of reproduction in which an organism simply breaks up into smaller pieces.

*Spirogyra* is a multicellular organism which reproduces through this method. ①+1

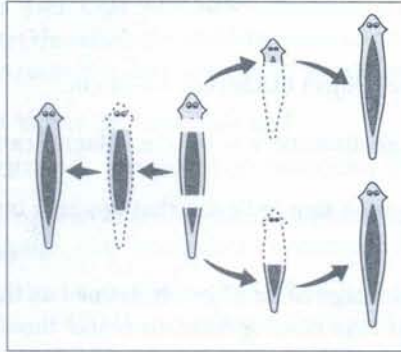
or

Budding, fragmentation and regeneration are the ways of reproduction, but they do not involve reproductive cells for multiplication. In budding, *Hydra* uses regenerative cells for reproduction. A bud develops as an outgrowth and due to repeated cell division, it grows as a tiny individual.

Fragmentation in *Spirogyra* occurs by simply breaking up into smaller pieces upon maturation. These pieces or fragments grow into complete new individuals.

Regeneration is carried out by special cells, e.g., in *Planaria*. These cells proliferate and make large number of cells. From this mass of cells, different cells undergo changes to become various cell types and tissues. These changes take place in an organised sequence referred to as development.

The diagram showing regeneration in *Planaria* is given below



⑤

- Q22.** (a) What does STD stand for? Name two such diseases caused by bacteria.  
 (b) What does AIDS stand for? What are the modes of transmission of AIDS?

or

- (a) What changes are observed in the uterus subsequent to implantation of young embryo?  
 (b) What could be the reasons for adopting contraceptive methods?  
 (c) Why is the female reproductive system more complex than the male reproductive system?

**Sol.** (a) STD – Sexually Transmitted Disease

Gonorrhoea and syphilis are two STDs caused by bacteria.

②

(b) AIDS – Acquired Immuno Deficiency Syndrome

①

Modes of transmission of AIDS are

- (i) By having sexual contact with an infected person.  
 (ii) By transfusion of blood from an infected person.  
 (iii) Through infected needles used for injection.  
 (iv) Through the placenta from the HIV positive mother to the child during pregnancy.

$\frac{1}{2} \times 4$

or

- (a) After implantation of young embryo, a disc-like special tissue develops between the uterus wall and the embryo called placenta. The exchange of nutrients, oxygen and waste between the embryo and the mother takes place through the placenta. ②  
 (b) The reasons for adopting contraceptive methods are  
 (i) To avoid frequent pregnancies, which in turn helps in population control.  
 (ii) To prevent the spread of Sexually Transmitted Diseases (STDs). ①  
 (c) Female reproductive system is more complex than the males because it solves more purposes i.e., production and development of embryo, giving birth and nourishment to the infant. It is tend to be more cyclic and the female hormones are also secreted in a more complex sequence than the relatively steady secretion in males. ②



**Q23.** (a) Draw a labelled diagram of human female reproductive system.

(b) What is the function of the following parts?

(i) Ovary

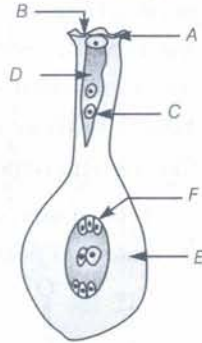
(ii) Fallopian tubes

(iii) Uterus

(iv) Vagina

or

(a) Label the parts A to F in the figure given below



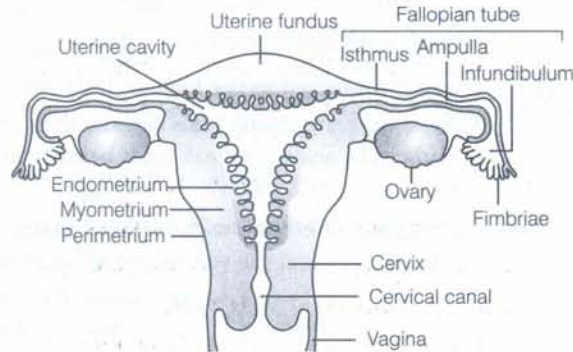
(b) Define the term 'double fertilisation' in plants.

(c) After fertilisation which part develops into

(i) fruit and

(ii) seeds.

**Sol.** (a) The diagram showing human female reproductive system is given below



③

(b) (i) **Ovary** It produces the female gamete or ovum and secretes the female sex hormones *i.e.*, oestrogen and progesterone.

(ii) **Fallopian tubes** They carry ova from the ovary to the uterus. Hence, fertilisation of the gametes takes place here.

(iii) **Uterus** It is the site of implantation of the embryo.

(iv) **Vagina** It receives the sperms from the male and also serves as the passage through which the fully developed foetus is born.

$\frac{1}{2} \times 4$

or

(a) A—Pollen grain (germinating), B—Stigma, C—Male germ cell, D—Pollen tube, E—Ovary, F—Female germ cell

②

(b) Process which involves two types of fertilisation occurring at the same time in the ovule of the plant in which one male nucleus fuses with egg cell to form zygote ( $2n$ ) and the other male nucleus fuses with two polar nuclei to form an endosperm ( $3n$ ) is called double fertilisation.

②

(c) (i) Ovary develops into fruit. (ii) Ovules develop into seeds.

$\frac{1}{2} \times 2$

**Q24.** (a) An ester has the molecular formula  $C_3H_6O_2$ . Write its structural formula. What happens when this ester is heated in the presence of sodium hydroxide solution? What is saponification reaction?

- (b) (i) What are the two forms of energy liberated on burning alcohol?  
 (ii) How are carboxylic acids different from mineral acids?

or

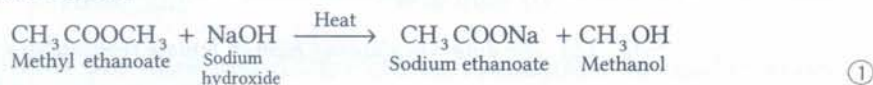
- (a) What happens when  
 (i) ethene reacts with bromine water.  
 (ii) a small piece of sodium is dropped in ethanol.  
 (iii) ethanol reacts with acidified potassium dichromate solution.  
 (b) Give a test that can be used to differentiate between butter and cooking oil.

**Sol.** (a) Molecular formula of an ester is  $C_3H_6O_2$ .

Its structural formula is as follows



On heating this ester in the presence of sodium hydroxide solution, sodium ethanoate and methanol are formed.

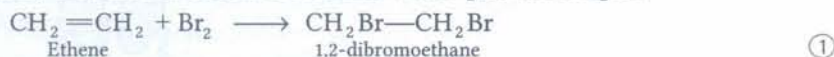


When esters are hydrolysed with alkalis, the reaction is known as saponification. (1)

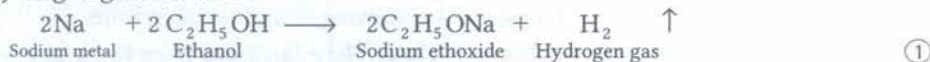
- (b) (i) Energy is released in the form of heat and light when alcohol is burnt. (1)  
 (ii) Mineral acids are strong acids because they are completely ionised in water, while organic or carboxylic acids are weak acids because they are only partially ionised in water. (1)

or

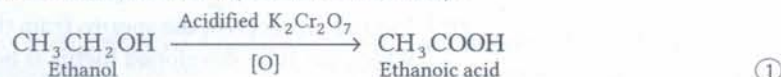
- (a) (i) On reaction of ethene with bromine water, 1,2-dibromoethane is formed (addition of  $\text{Br}_2$  to ethene) and the red colour of bromine water gets discharged.



- (ii) When a small piece of sodium is dropped in ethanol, sodium ethoxide is formed and hydrogen gas is evolved.



- (iii) On reaction of ethanol with acidified potassium dichromate solution, ethanoic acid is formed by the oxidation of ethanol (oxidation reaction).



- (b) Butter contains saturated compounds while cooking oil contains unsaturated compounds. Since, unsaturated compounds are oxidised by alkaline  $\text{KMnO}_4$ , with disappearance of its pink colour. Therefore, when cooking oil is treated with a few drops of alkaline  $\text{KMnO}_4$ , it disappears. With butter, however, the pink colour of  $\text{KMnO}_4$  does not disappear. (2)

## Section B

**Q25.** Which of the following is the first member of alkyne series and is used in oxyacetylene flame in welding?

- (a) Ethane                      (b) Ethene                      (c) Ethyne                      (d) Propyne

**Sol.** (c) Ethyne ( $C_2H_2$ ) or acetylene is the first member of alkyne series. It is used in oxyacetylene flame in welding.

**Q26.** A student mixed some acetic acid with water. He would have observed

- I. a pink and opaque solution                      II. a green and transparent solution  
III. a colourless and transparent solution.                      IV. two separate layers.

*The correct option (s) is/are*

- (a) Only III    (b) III and IV  
(c) I and IV    (d) II and IV

**Sol.** (c) Acetic acid is a colourless and vinegar smelling liquid. It is miscible with water in all proportions. Hence, the solution remains colourless and transparent on mixing water to acetic acid.

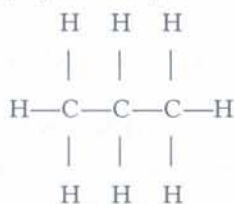
**Q27.** Propane with the molecular formula  $C_3H_8$  has

- I. 6 covalent bonds                                      II. 10 covalent bonds  
III. 2 C—C bonds                                      IV. 6 C—H bonds

*The correct options are*

- (a) I and III    (b) II and III  
(c) II, III and IV                                      (d) I, III and IV

**Sol.** (b) *Structural formula of propane is as follows*



Hence, the total covalent bonds are 10.

**Q28.** Sodium bicarbonate solution is added to dilute ethanoic acid. It is observed that

- I. a colourless odourless gas evolves  
II. the obtained gas extinguishes a lightening splinter.  
III. the mixture becomes light yellow  
IV. the mixture becomes warm

*The correct observations are*

- (a) I and II    (b) I and III  
(c) II and III    (d) II and IV

**Sol.** (a) Ethanoic acid on reaction with sodium bicarbonate evolves  $CO_2$  gas with brisk effervescence.  $CH_3COOH + NaHCO_3 \longrightarrow CH_3COONa + H_2O + CO_2 \uparrow$   
This gas does not help in combustion and extinguishes a lightening splinter.

**Q29.** Sometimes, the bottom of the vessel gets blackened from outside during cooking, it means that

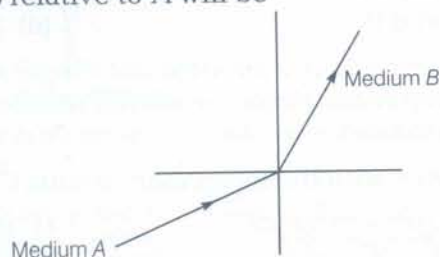
- I. the fuel is wet
- II. the fuel is not burning completely
- III. insufficient amount of oxygen is available
- IV. the food is not cooked completely

The correct statement (s) is/are

- (a) Only II
- (b) II and III
- (c) I, II and III
- (d) I, II, III, IV

**Sol.** (b) If fuel is burnt in inadequate supply of oxygen then, smoky flame is produced due to incomplete combustion of fuel.

**Q30.** A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to A will be



- I. greater than unity
- II. less than unity
- III. equal to unity
- IV.  $\sin i / \sin r > 1$

The correct options are

- (a) I and II
- (b) I and III
- (c) I and IV
- (d) II and III

**Sol.** (c) Here, light ray enters from medium A to medium B, it deviates towards the normal and hence,

(i) Angle of incidence ( $i$ ) becomes greater than angle of refraction ( $r$ ). Therefore,  $\sin i > \sin r$  or  $\sin i / \sin r > 1$  or refractive index ( $n$ )  $> 1$ .

(ii) Medium B must be optically denser than medium A, therefore, refractive index of medium B relative to A is greater than one.

**Q31.** Rays from the sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that the size of its image is equal to the size of the object?

- I. 15 cm in front of the mirror
- II. 30 cm in front of the mirror
- III. Between 15 cm and 30 cm in front of the mirror
- IV. At the centre of curvature

The correct options are

- (a) I and II
- (b) I and IV
- (c) II and IV
- (d) III and IV

**Sol.** (c) The rays from sun, i.e., from infinity are parallel to principal axis and after reflection converge at a point, known as focus. Therefore, focal length ( $f$ ) of concave mirror = 15 cm. Also, the same sized, real and inverted image is formed by concave mirror when object is placed at  $2F$  or centre of curvature.

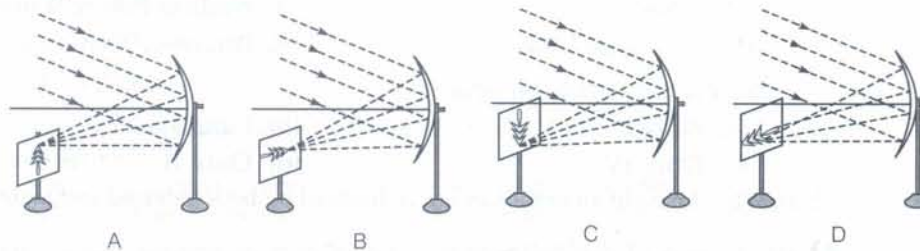
- Q32.** Magnification produced by a rear view mirror fitted in vehicles  
 (a) is less than one (b) is more than one  
 (c) is equal to one  
 (d) can be more than or less than one depending upon the position of the object in front of it

**Sol.** (a) The rear view mirror is a convex mirror. The convex mirror forms virtual, erect and diminished image of the object. Therefore, magnification produced by a rear view mirror fitted in vehicles is less than one.

- Q33.** When light rays enter the eye, most of the refraction occurs at the  
 (a) crystalline lens (b) outer surface of the cornea  
 (c) iris (d) pupil

**Sol.** (b) The light rays enter the eye through a thin membrane, forms the transparent bulge on the front surface of the eyeball, called the cornea. Most of the refraction for the light rays entering the eye occurs at this outer surface of the cornea.

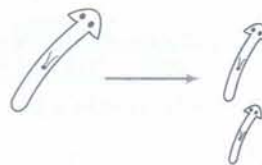
- Q34.** Parallel rays, from the top of a distant tree, incident on a concave mirror, form an image on the screen.



- The diagram correctly showing the image of the tree on the screen is  
 (a) A (b) B (c) C (d) D

**Sol.** (c) The sharp, inverted and vertical image of the distant tree is formed by a concave mirror.

- Q35.** What does the diagram given below illustrate?



- (a) Binary fission in *Amoeba* (b) Regeneration in *Planaria*  
 (c) Budding in yeast (d) Fragmentation in *Spirogyra*.

**Sol.** (b) Regeneration in *Planaria*. Regeneration involves the formation of full organism from a body part.

- Q36.** Which type of organism is yeast?  
 (i) bacterium (ii) algae (iii) virus (iv) fungus

How does it reproduce?

- I. binary fission II. regeneration III. budding IV. fragmentation

Which of the following is the correct combination?

- (a) i → III (b) ii → I (c) iv → III (d) iv → II

**Sol.** (c) Yeast is a type of fungus which reproduces by budding.

**Q37.** Select the correct statements for the process of budding in yeast.

- I. yeast cells do not separate after budding
- II. bud of yeast cell develop from a particular region on a parent body
- III. yeast cells stuck to each other due to presence of mucous
- IV. yeast cells suffer from a disease

The correct option (s) is/are

- (a) Only I                      (b) I and II                      (c) I and III                      (d) III and IV

**Sol.** (b) Budding in yeast cell is so fast that the first buds start forming their own buds and all of them remain attached to the parent yeast cell forming a chain and it develops only from a particular region on a parent body.

**Q38.** A plant that produces a fruit but no seeds is

- (a) groundnut                      (b) corn  
(c) pea                      (d) banana

**Sol.** (d) Banana is a sterile plant.

**Q39.** A trait in an organism is influenced by Paternal.

- I. DNA
- II. Neither Paternal nor maternal DNA
- III. Maternal DNA
- IV. Paternal DNA only

The correct option (s) is/are

- (a) Only I                      (b) I and III  
(c) Only IV                      (d) Only II

**Sol.** (b) Traits in an organism are influenced by both paternal and maternal DNA.

**Q40.** Which of the following is not a part of female reproductive system in human beings?

- I. Ovary
- II. Vas deferens
- III. Epididymis
- IV. Uterus

The correct option (s) is/are

- (a) I and III                      (b) Only II  
(c) II and III                      (d) II and IV

**Sol.** (c) Vas deferens and epididymis are a part of male reproductive organ.

**Q41.** Asexual reproduction takes place through budding in

- (a) *Amoeba*                      (b) yeast  
(c) *Plasmodium*                      (d) *Leishmania*

**Sol.** (b) *Amoeba*, *Plasmodium* and *Leishmania* reproduce by binary fission.

**Q42.** The number of electron pairs shared by the two carbon atoms which are bonded by a triple bond are

- (a) one pair                      (b) two pairs  
(c) three pairs                      (d) six pairs

**Sol.** (c) Three pairs e.g.,  $\text{H}-\text{C}\equiv\text{C}-\text{H}$  or  $\text{H}:\text{C}::\text{C}:\text{H}$