

CBSE  
Class X Science  
Sample Paper – 5  
Term II

Total time: 3 hrs

Total marks: 90

**General instructions:**

1. The question paper comprises of **two sections, A and B**. You are to attempt both the sections.
2. All the questions of **Section-A** and **Section-B** are to be attempted separately.
3. Question numbers **1 to 3** in **Section - A** are **one mark** questions. These are to be answered in one word or one sentence.
4. Question numbers **4 to 6** in **section - A** are **two marks** questions, to be answered in about **30 words each**.
5. Question number **7 to 18** in **section-A** are **three marks** questions, to be answered in about **50 words**.
6. Question number **19 to 24** in **section-A** are **five marks** questions, to be answered in about **70 words**.
7. Question numbers **25 to 33** in **section-B** are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.
8. Question numbers **34 to 36** in **Section B** are questions based on practical skills and are two marks questions.

**SECTION A**

1. Give the molecular formula and the IUPAC name of a carboxylic acid used as a preservative. [1]
2. Why is the refractive index of a medium always greater than one? [1]
3. The organisms formed by asexual reproduction are considered as clones. Why? [1]
4. Why are we unable to see immediately after we enter a dark hall? [2]
5. [2]
  - (a) Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements? If yes, write the similarity.
  - (b) Helium is a non-reactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common?

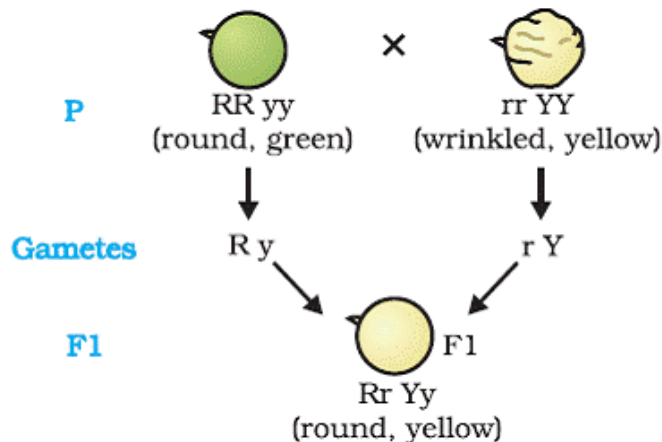
6. Differentiate between biodegradable and non-biodegradable waste materials. [2]
7. [3]
  - (a) How the 'Chipko Andolan' ultimately benefitted the local population?
  - (b) Why should we conserve wild life?
  - (c) Expand the term IUCN?
8. Consider the following elements: Na, Ca, Al, K, Mg and Li. [3]
  - (a) Which of these elements belong to the 3<sup>rd</sup> period of the Modern Periodic Table?
  - (b) Which of these elements belong to Group 1 of the Modern Periodic Table?
  - (c) Which of these elements show a valency of +3?
9. [3]
  - (a) A convex mirror used in an automobile which has 3 m radius of curvature. If a bus is located at 5 m from the mirror, find the position, nature and size of the image.
  - (b) What is the effect on the wavelength of light when it travels from a rarer to a denser medium?
10. [3]
  - (a) For what position of the object does a convex lens form an erect and virtual image?
  - (b) What is regular reflection of light?
  - (c) What type of mirror is used as a shaving mirror? Support your answer with reason.
11. [3]
  - (a) How does an eye adjust itself to deal with light of varying intensity?
  - (b) Give one cause of near sightedness.
12. [3]
  - (a) Which factors determine the focal length of a lens?
  - (b) Draw ray diagrams to show image formation by a concave mirror, when it is placed beyond C
13. Ethanol is used on a large scale at commercial level. It is commonly called alcohol and is an active ingredient of alcoholic drinks. Yet, consumption of alcohol also causes drunkenness and this practice is socially condemned. As a responsible student of class X, what steps you would take to discourage the use of alcohol. [3]
14. Name: [3]
  - (a) Three elements that have a single electron in their outermost shells.
  - (b) Two elements that have two electrons in their outermost shells.
  - (c) Three elements with filled outermost shells.
15. Describe the concept of trophic levels briefly. [3]

16. [3]

- How will you define the gene of a particular protein?
- How speciation may take place?
- The gene for red hair is recessive to the gene for black hair. What will be the hair colour of a person if he inherits a gene for red hair from his mother and a gene for black hair from his father?

17. [3]

- How many characters are transmitted in the following cross? Name them.



- Define dominant and recessive trait.

18. What is meant by multiple fission? Explain the process and give an explain. [3]

19. [5]

- Describe double fertilization in plants.
- Why does menstruation occur?

20. [5]

- How will you bring about the following conversions? Explain by giving suitable chemical equations.
  - Ethanol to ethanoic acid.
  - Ethanol to ethene.
  - Ethanol to ethyl ethanoate
- Why do unsaturated hydrocarbons burn with a yellow flame?
- Why soaps cannot be used in hard water?

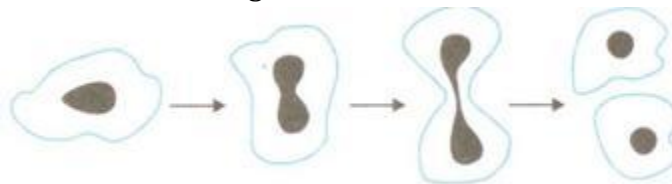
21. [5]

- How has the method of artificial selection by humans helped in the evolution of different vegetables? Explain in brief with the help of an example.
- Mention some of the tools for tracing evolutionary relationships among species.

22. [5]
- What is regeneration of an organism? Describe with a neat diagram, regeneration in Planaria.
  - How does the embryo get nourishment inside the mother's body?
  - List the changes seen in the ovule and ovary after fertilisation.
23. [5]
- Draw a ray diagram to show the position and nature of the image formed when the object is placed at focus F of a concave lens.
  - Spherical mirror A forms an erect image of an object, a spherical mirror B forms erect as well as inverted image of an object. Name the type of mirror in case of both, A and B.
  - What is the relation between the focal length and the radius of curvature of a spherical mirror? If the radius of curvature of a spherical mirror is 25 cm, what is the focal length?
24. [5]
- What is meant by far point?
  - What happens to the image distance in the eye, when we increase the distance of an object from the eye?
  - A person has normal vision, but he cannot distinguish between red-green colours. Why?

### SECTION B

25. The process represented in the diagram below is the [1]



- Formation of spores in Amoeba
  - Formation of bud taking place in Amoeba
  - Identical gametes being formed in Amoeba
  - Formation of daughter cells in Amoeba
26. Which of the following statements is incorrect? [1]
- Homologous organ have similar origin.
  - Analogous organs have similar function.
  - Homologous organs have similar function.
  - Analogous organs have dissimilar origin.

- 27.** Yeast is a [1]  
(a) Unicellular algae  
(b) Unicellular fungi  
(c) Multicellular bacteria  
(d) A protozoa
- 28.** Which gas is released when ethyl alcohol reacts with sodium? [1]  
(a) Carbon dioxide  
(b) Hydrogen  
(c) Oxygen  
(d) Nitrogen
- 29.** In an experiment to trace the path of a ray of light through a glass prism for different values of angle of incidence, a student would find that the emergent ray [1]  
(a) Is parallel to the incident ray  
(b) Perpendicular to the incident ray  
(c) Is parallel to the refracted ray  
(d) Bends at an angle to the direction of the incident ray
- 30.** Which of the following will have the lowest pH? [1]  
(a)  $\text{CH}_3\text{COONa}$   
(b)  $\text{CH}_3\text{COOH}$   
(c)  $\text{NaOH}$   
(d)  $\text{NaHCO}_3$
- 31.** A student performed an experiment for finding focal length of a concave mirror using a distant object. What was the best method followed by him? [1]  
(a) Hold the mirror in hand and keep the screen in a stand kept behind the mirror.  
(b) Hold the mirror in a stand and hold the screen in hand with the screen in front of the mirror.  
(c) Keep both the mirror and the screen in suitable stands with the screen put behind the mirror.  
(d) Keep both the mirror and the screen in suitable stands with the screen put in front of the mirror.

**32.** Ethanoic acid was added to sodium hydrogen carbonate solution and the gas evolved was tested with a burning splinter. The following four observations were reported [1]

- i. The gas burns with the pop sound and the flame gets extinguished.
- ii. The gas does not burn but the splinter burns with a pop sound.
- iii. The flame extinguishes and the gas does not burn.
- iv. The gas burns with a blue flame and the splinter burns brightly.

The correct observation is reported in:

- (a) i
- (b) ii
- (c) iii
- (d) iv

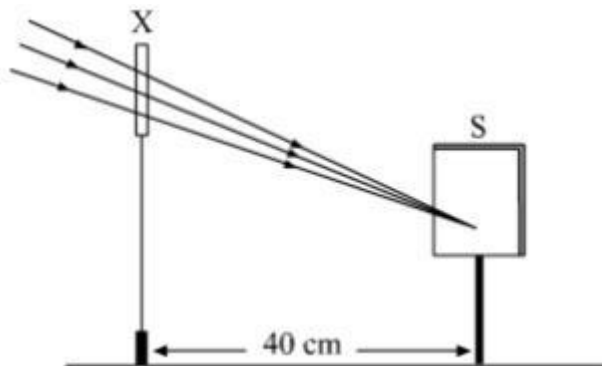
**33.** 2 mL of ethanoic acid was taken in each of the three tubes A, B and C and 2 mL, 4 mL and 8 mL of water was added to them, respectively. A clear solution was obtained after shaking the mixtures in [1]

- (a) Test tube A only
- (b) Test tubes A and B only
- (c) Test tubes B and C only
- (d) All the test tubes

**34.** 5 dry raisins were placed in each of the two beakers containing 50 ml of water. After four hours, the raisins were taken out and wiped. For calculating the percentage of water absorbed by raisins, the raisins should have been weighed. [2]

- (a) Only before placing in water
- (b) Only after four hours of their being in water
- (c) Both, before and after placing them in water
- (d) Before and at intervals of every hour

35. A student focused the image of a distant object using a device 'X' on a white screen 'S' as shown in the figure. If the distance of the screen from the device is 40 cm, select the correct statement about the device. [2]



- (a) The device X is a convex lens of focal length 20 cm.
  - (b) The device X is a concave mirror of focal length 40 cm.
  - (c) The device X is a convex mirror of radius of curvature 40 cm.
  - (d) The device X is a convex lens of focal length 40 cm.
36. Name the product formed when ethanoic acid reacts with methanol. Give the chemical reaction. [2]