CBSE
Class X Science
Sample Paper – 7
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. When a person is suffering from both myopia and hypermetropia, then what type of correction lenses are required? [1]

2. Draw the electron dot structure of CH_3Cl. [1]

3. Where does fusion of male and female gamete take place in plants? [1]

4. Mention any two functions of the human ovary. [2]

5. Give four characteristics of an image formed by a plane mirror. [2]

6. Two elements 'A' (atomic number 7) and 'B' (atomic number 15) belong to group 15 of the periodic table. Write the electronic configuration of these elements. Which of these will be more electronegative and why? [2]

7. [3]

(a) Define the process of incineration.

(b) Why is it considered as the safe method of waste disposal?

8. To get an image of same size as that of the object by a thin convex lens of focal length 20 cm, where should the object be placed? Draw ray diagram to show image formation in this case. Is the image real or virtual? [3]

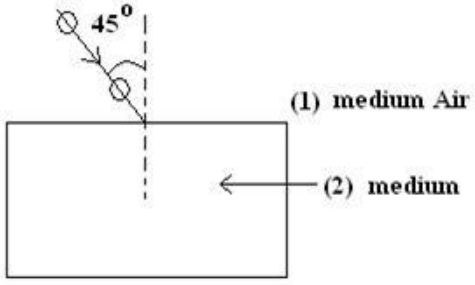
9. What is magnification? What will be the magnification (positive/negative) in the following cases? [3]

(a) when the image is real and inverted,

(b) When the image is virtual and erect. Also, give reason.

10. An object is kept in front of a concave mirror of focal length 20 cm. The image is three times the size of the object. Calculate two possible distances of the object from the mirror. [3]

11. [3]



A ray of light is incident at an angle of 45° at the interface of medium (1) and medium (2) as shown in the above diagram. Redraw this diagram in the answer book and complete it. If the angle of refraction is 30°, find the refractive index of medium (2) with respect to medium (1).

(Given that $\sin 45^0 = \frac{1}{\sqrt{2}}$ sin and $\sin 30^0 = \frac{1}{2}$)

If second medium is water in place of medium (2), will the angle of refraction increase or decrease? Why? (Refractive index of water =4/3)

12. (a) How and (b) Why do atomic radii of elements change as we move [3]

i. From left to right in a period?

ii. Down a group in the periodic table?

13. Chemical reactivity of alkali metals increases, while that of halogens decreases as we move from top to bottom in a group. Give reasons. [3]

Group / Period	1	2	13	14	15	16	17	18
I	a							j
II	b	e				g	h	k
III	c			f			i	l
IV	d							

14. Consider the table given above and answer the following questions: [3]

i. Name the most reactive metal.
ii. How many shells does 'd' have?
iii. Name the element (s) having valency 2.
iv. How many valence electrons does 'j' have?
v. Which is more non-metallic, 'h' or 'i'?
vi. The atom of which element is bigger in size, 'e' or 'h'?

15. List any three advantages of water harvesting. [3]

16. What is the homology between the fore limb of a frog, lizard and the wing of a bird? What does it indicate? State one function each of forelimbs of [3]

i. Human beings
ii. birds

17. Define fossils. How are they formed? [3]

18. When a plant with purple flowers was crossed with a plant having white flowers, in F_1 generation all flowers which appeared were purple. If F_1 generation plants are self fertilized, what is expected in F_2 progeny? Explain with the help of a flow chart. [3]

19. [5]

(a) Differentiate between menarche and menopause. Mention any three points.
(b) How placenta acts as an excretory organ?

20. State and explain the type of mirror required to get:

i. Virtual and diminished image of an object
ii. Real and diminished image of an object

Show image formation in both the above cases in the form of ray diagrams. [5]

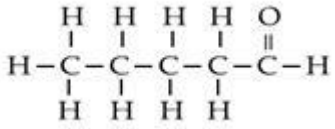
21. [5]

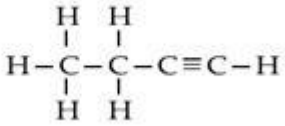
(a) What is Tyndall effect?

(b) Write a note on the colour of the Sun at sunrise and sunset.

22. [5]

i. Write the name of the following compounds:

(a) 

(b) 

ii. Write chemical equations for the following reactions:

(a) Ethene is made to react with hydrogen in the presence of Nickel catalyst.

(b) Ethanol is heated with alkaline $KMnO_4$.

(c) Sodium carbonate is made to react with ethanoic acid.

23. [5]

(a) Sketch a neat diagram of female reproductive system in human beings and label it.

i. Fallopian tube
ii. Ovary
iii. Uterus
iv. Cervix

(b) Mention a change seen in a girl at the time of puberty.

(c) How do mechanical barrier devices prevent pregnancy?

24. Define the term 'double fertilization in plants'. After fertilization, name the part in each case which develops into i. fruit and ii. seeds. Where does vegetative propagation find its application? [5]

SECTION B

25. Monika has to determine the focal length of a concave mirror and a convex lens of focal length about 15 cm each. She uses a distant tree as the object and obtains the sharp image of the tree, one by one, on a screen. The distances l_1 and l_2 between the mirror/lens and the screen in the two cases and the nature of their respective images obtained on the screen are likely to be: [1]

(a) (30 cm, 15 cm) and (erect, inverted)
(b) (15 cm, 15 cm) and (inverted, inverted)
(c) (15 cm, 30 cm) and (inverted, erect)
(d) (30 cm, 30 cm) and (inverted, inverted)

26. Given below are a few steps (not in proper sequence) followed by the determination of focal length of a given convex lens by obtaining a sharp image of a distant object [1]

(A) Measure the distance between the lens and screen.
(B) Adjust the position of the lens to form a sharp image.
(C) Select a suitable distant object.
(D) Hold the lens between the object and screen with its faces parallel to the screen.

The correct sequence of steps for determination of focal length is:

(a) (C), (A), (D), (B)
(b) (C), (D), (B), (A)
(c) (C), (A), (B), (D)
(d) (A), (B), (B), (D)

27. The oxidising agent used to convert alcohols into carboxylic acid is [1]

(a) Alkaline Potassium permanganate
(b) Phosphorus trichloride
(c) Conc. sulphuric acid
(d) Sodium

28. When we put acetic acid in H_2O, the ions formed are: [1]

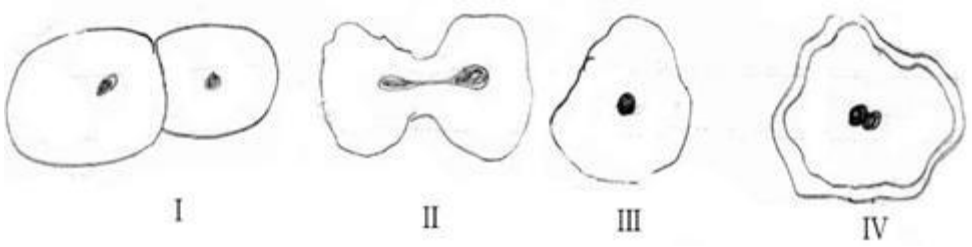
I. CH_3COO^- II. H_3O^+

(a) I
(b) II
(c) I and II both
(d) Neither I nor II

29. Which statement is correct in relation to hydrochloric acid and ethanoic acid? [1]

(a) Ethanoic acid is stronger than hydrochloric acid.
(b) Hydrochloric acid is stronger than ethanoic acid.
(c) Both are equally strong.
(d) Ethanoic acid gives more hydrogen ions than hydrochloric acid in aqueous solution.

30. The diagram which most appropriately illustrates the binary fission in amoeba is [1]

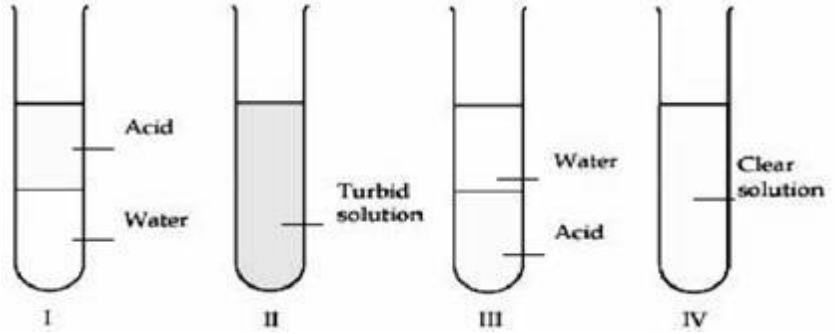


(a) I
(b) II
(c) III
(d) IV

31. Following diagram was drawn by a student on having seen a prepared slide under a compound microscope. [1]

The slide depicts:
(a) Binary fission in yeast
(b) Budding in yeast
(c) Binary fission in Amoeba
(d) Budding in Amoeba

32. Student added 5 mL of acetic acid to 5 mL of water and the mixture was shaken well for one minute and allowed to settle. [1]

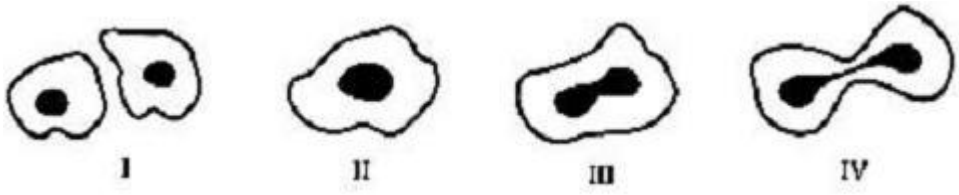


The correct representation of the observation made would be:
(a) I
(b) II
(c) III
(d) IV

33. A student dissolved 1 g of sugar in 10 mL of distilled water in a beaker 'A'. He dissolved 10 g of sugar in 100 mL of distilled water in beaker B. Then he dropped a few raisins, in each. After two hours, he found the raisins, [1]

(a) Swollen in A and shrunken in B
(b) Swollen in A and swollen in B
(c) Swollen in both
(d) Shrunken in both

34. In the following diagram, binary fission in amoeba is illustrated but the different stages of the process are not in proper sequence. [2]



The correct sequence of fission process is:

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

35. Which gas is liberated when ethanoic acid reacts with carbonates? Give a reaction to support your answer. [2]

36. To draw the image of an object formed by a convex lens for its various positions, a student covered the upper half of the lens by an opaque screen, he observes that [2]

(a) full image but of increased intensity is seen
(b) half image of same intensity is seen
(c) full image and of same intensity is seen
(d) complete image is formed but of decreased intensity