# CBSE Sample paper 01

# ( For board Exam 2026)

Class 10th | Subject : Science | FM : 80

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General Instructions:

1. All questions would be compulsory. However, an internal choice of approximately 33% would be provided. 50% marks are to be allotted to competency-based questions.

2. Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.

3. Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.

4. Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.

5. Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.

6. Section E would have 3 source based/case based/passage based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks.

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## Section A

Question 1 to 16 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

1. A ray of light travels from a denser to a rarer medium at an angle greater than the critical angle. What happens?
A. It refracts
B. It gets absorbed
C. It bends towards the normal
D. It undergoes total internal reflection

2. Which of the following has the maximum refractive index?
A. Water
B. Glass
C. Diamond
D. Air

3. Which chemical reaction occurs when chlorine is passed over dry slaked lime?
A. $Ca(OH)_2 + Cl_2 \rightarrow CaCl_2 + H_2O$
B. $Ca(OH)_2 + Cl_2 \rightarrow Ca(OCl)Cl + H_2O$
C. $Ca(OH)_2 + Cl_2 \rightarrow CaCO_3 + HCl$

D. $CaCl_2 + H_2O \rightarrow Ca(OH)_2 + Cl_2$

4. Which among the following is not a characteristic of homologous organs?
A. Similar embryonic origin
B. Similar structure
C. Similar function
D. Inherited from common ancestor

5. What is the pH of a solution where $[H^+] = 1 \times 10^{-9}$ M?
A. 5
B. 7
C. 9
D. 3

6. Which of the following hormones is responsible for phototropism?
A. Cytokinin
B. Gibberellin
C. Auxin
D. Abscisic acid

7. If a current of 2 A flows through a resistor of 10 ohm for 5 minutes, the total heat produced is:
A. 600 J
B. 2000 J
C. 12000 J
D. 24000 J

8. Which of the following is formed during anaerobic respiration in muscles?
A. Ethanol
B. Lactic acid
C. Carbon dioxide
D. Pyruvate

9. Baking soda is:
A. Sodium carbonate
B. Sodium bicarbonate
C. Calcium carbonate
D. Ammonium carbonate

10. What is the focal length of a concave lens if its power is –2D?
A. +50 cm
B. –50 cm
C. +100 cm
D. –100 cm

11. The primary function of the loop of Henle is:
A. Filtration
B. Reabsorption of water
C. Secretion

D. Absorption of glucose

12. Which of the following evolutionary evidence is provided by the forelimbs of whales, bats, and humans?
A. Vestigial organs
B. Analogous organs
C. Fossils
D. Homologous organs

13. Which of the following is a double displacement reaction?
A. $NaOH + HCl \rightarrow NaCl + H_2O$
B. $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
C. $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
D. $Zn + HCl \rightarrow ZnCl_2 + H_2$

14. Which equation is not balanced correctly?
A. $2H_2 + O_2 \rightarrow 2H_2O$
B. $Zn + 2HCl \rightarrow ZnCl_2 + H_2$
C. $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
D. $CaCO_3 \rightarrow CaO + CO$

15. What is the role of placenta during pregnancy?
A. Protects the embryo
B. Supplies oxygen and nutrients
C. Helps in digestion
D. Controls hormones

16. When does dispersion of light take place?
A. When light reflects
B. When light travels in vacuum
C. When light splits into different wavelengths
D. When light gets absorbed

(17 to 20 )
Instructions:
Choose the correct option:
A. Both A and R are true, and R is the correct explanation of A.
B. Both A and R are true, but R is not the correct explanation of A.
C. A is true, but R is false.
D. A is false, but R is true.
17. Assertion (A): The resistance of a conductor increases with the increase in temperature.
Reason (R): At higher temperatures, electrons collide more frequently with atoms.

18. Assertion (A): The image formed by a convex lens is always virtual.
Reason (R): A convex lens always diverges light rays.

19. Assertion (A): In plants, xylem transports water and minerals in one direction only.
Reason (R): Transpiration pull aids in upward movement of water.

20. Assertion (A): Magnetic field lines never intersect each other.
Reason (R): If they did, it would mean two directions of magnetic field at one point.

## Section-B

Question No. 21 to 26 are very short answer questions

21. Why are decomposition reactions called the opposite of combination reactions? Give one example.

22. Define power of a lens. What is the power of a concave lens of focal length 25 cm?

23. What are trophic levels? Why do they form a stepwise pattern in a food chain?

Or

What is saponification? Write the chemical equation for it.

24. What are biodegradable and non-biodegradable substances? Give one example each.

Or

Write two differences between reflex action and walking.

25. A concave mirror forms an image twice the size of the object. If the object is placed 10 cm in front of the mirror, find the focal length of the mirror.

Or

Why is carbon able to form a large number of compounds? Explain with reference to tetravalency and catenation

26. Why is the reaction of sodium with water highly exothermic and dangerous? Write the balanced chemical equation.

Section-C

Question No. 27 to 33 are short answer questions

27. **Describe the role of the following in human reproduction:**

a) Testes
b) Fallopian Tube
c) Uterus

28. Why is the pH of an acidic solution less than 7? What happens to the pH if you add water to it? What does it indicate about the concentration of $H^+$ ions?

29. State the laws of refraction of light. Draw a ray diagram to show refraction through a glass slab.

30. **Write the balanced chemical equations for:**

(a) Thermal decomposition of lead nitrate
(b) Reaction of zinc with copper sulphate
(c) Action of chlorine on slaked lime

Or

**10 mL of a solution of NaOH is found to be completely neutralised by 8 mL of a solution of HCl.**

(a) What information do you get from this data?
(b) What is the ratio of concentrations of NaOH and HCl?
(c) Which law does this support?

31. **Mendel crossed pure tall (TT) with pure dwarf (tt) pea plants.**

(a) What were the $F_1$ and $F_2$ ratios?
(b) Explain the reason for the observed traits in $F_2$ generation.
(c) What is meant by dominant and recessive trait?

32. **Explain with reason:**

(a) Dry HCl gas does not change the colour of dry litmus paper.
(b) Lemon juice is used to clean copper vessels.
(c) Toothpaste is basic in nature.

33. (a) With the help of an activity, explain the conditions under which iron articles get rusted. *3*

OR

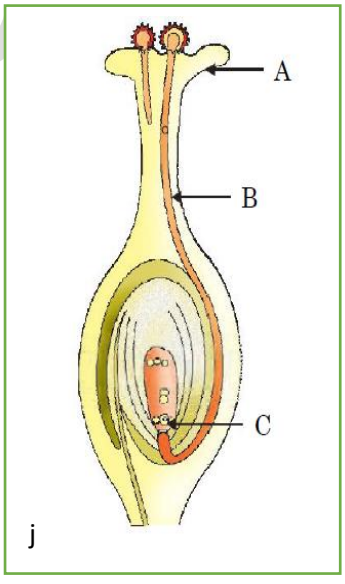
(b) (i) Name two metals which react violently with cold water. List any three observations which a student notes when these metal are dropped in a beaker containing water.

(ii) Write a test to identify the gas evolved (if any) during the reaction of these metals with water.

## . Section D

34. (i) A carbon compound X is a good solvent. On reaction with sodium, X forms two products Y and Z. Z is used to convert vegetable oil into vegetable ghee. Identify and name X, Y and Z. Also write the equation of reaction of X with sodium to justify your answer.
(ii) Write chemical equation to show what happens when ethanol :
(I) burns in oxygen/air.
(II) is heated at 443 K in excess conc. $H_2SO_4$.
(III) reacts with acidified potassium dichromate

34. (i) Differentiate between self-pollination and cross-pollination.
(ii) Identify A, B and C in the diagram given below and write one function of each.



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35. (i) Draw a ray diagram to show the refraction of a ray of light through a rectangular glass slab when it falls obliquely from air into glass.

(ii) State Snell's law of refraction of light.

(iii) Differentiate between the virtual images formed by a convex lens and a concave lens on the basis of :

(I) object distance, and

(II) magnification.

## SECTION E

*The following questions are Source-based/Case-based questions. Read the case carefully and answer the questions that follow.*

**36.** Seawater contains many salts dissolved in it. Common salt is separated from these salts. Deposits of solid salt are also found in several parts of the world. These large crystals are often brown due to impurities. This is called rock salt and is mined like coal. The common salt is an important raw material for chemicals of daily use.

(a) Write balanced chemical equations to show the products formed during electrolysis of brine. *1*

(b) List two uses of any one product obtained during electrolysis of brine. *1*

(c) (i) A mild non-corrosive basic salt 'A', used for faster cooking, is strongly heated to produce a compound 'B', that is used for removing permanent hardness of water. Identify A and B and also write the equation for the reaction that occurs when A is heated. *2*

OR

(c) (ii) Define water of crystallisation. Give two examples of salts that have water of crystallisation. *2*

*37. The maintenance functions of all living organisms must go on even when they are not doing anything particular. Even when we are just sitting in a class or even asleep, this maintenance job has to go on. These maintenance processes require energy to prevent damage and break-down of cells and tissues, which is obtained by the individual organism from the food prepared by the autotrophs, called producers.*

*(a) Name and define the process by which green plants prepare food. 1*

*(b) Write chemical equation involved in the above process. 1*

(c) (i) State in proper sequence the events that occur in synthesis of food by desert plants. *2*

OR

(c) (ii) Explain giving reasons what happens to the rate at which the green plants will prepare food 2

(I) during cloudy weather, and

(II) when stomata get blocked due to dust..

38. In our homes, we receive the supply of electric power through a main supply also called mains, either supported through overhead electric poles or by underground cables. In our country the potential difference between the two wires (live wire and neutral wire) of this supply is 220 V.

(a) Write the colours of the insulation covers of the line wires through which supply comes to our homes. 1

(b) What should be the current rating of the electric circuit (220 V) so that an electric iron of 1 kW power rating can be operated ? 1

(c) (i) What is the function of the earth wire ? State the advantage of the earth wire in domestic electric appliances such as electric iron. 2

OR

(c) (ii) List two precautions to be taken to avoid electrical accidents. State how these precautions prevent possible damage to the circuit/appliance. 2