# CBSE Class 10 Science 01
# Solved Sample / Practice Paper - 2025-26
# CBSEGuess.com

Time allowed: 3 hours1 Maximum marks: 80

**General Instructions:**

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 objective-type questions carrying 1 mark each.
4. Section B consists of 6 Very Short Answer questions carrying 2 marks each.Answers to these questions should be in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer questions carrying 3 marks each. Answers to these questions should be in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer questions carrying 5 marks each.Answers to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/case-based questions carrying 4 marks each with sub-parts.

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## Section A (Objective Type Questions - 1 mark each)

1. A solution turns red litmus blue, its pH is likely to be:
   (a) 1
   (b) 4
   (c) 5
   (d) 10
2. The kidneys in human beings are a part of the system for:
   (a) nutrition
   (b) respiration
   (c) excretion
   (d) transportation
3. The device used for producing electric current is called a:
   (a) generator

(b) galvanometer
(c) ammeter
(d) motor

4. Which of the following is not a part of the female reproductive system in human beings?
   (a) Ovary
   (b) Uterus
   (c) Vas deferens
   (d) Fallopian tube
5. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be:
   (a) Calcium
   (b) Carbon
   (c) Silicon
   (d) Iron
6. The change in focal length of an eye lens is caused by the action of the:
   (a) pupil
   (b) retina
   (c) ciliary muscles
   (d) iris
7. Which of the following is an example of a combination reaction?
   (a) $CaO + H_2O \rightarrow Ca(OH)_2$
   (b) $2H_2O \rightarrow 2H_2 + O_2$
   (c) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
   (d) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
8. The magnetic field inside a long straight solenoid carrying current:
   (a) is zero
   (b) decreases as we move towards its end
   (c) increases as we move towards its end
   (d) is the same at all points
9. Which of the following is a plant hormone?
   (a) Insulin
   (b) Thyroxin
   (c) Oestrogen
   (d) Cytokinin
10. When a 12 V battery is connected across an unknown resistor, there is a current of 2.5 mA in the circuit. The value of the resistance of the resistor is:
    (a) 4800 Ω
    (b) 4.8 Ω
    (c) 480 Ω
    (d) 0.48 Ω
11. The functional group present in propanal is:
    (a) -OH
    (b) -COOH
    (c) -CHO
    (d) >C=O

12. The gap between two neurons is called a:
    (a) dendrite
    (b) synapse
    (c) axon
    (d) impulse
13. Which of the following is an example of a biodegradable substance?
    (a) Plastic
    (b) Polythene
    (c) Glass
    (d) Cow dung
14. The process of acquiring characters or traits from parents is called:
    (a) Evolution
    (b) Heredity
    (c) Variation
    (d) Speciation
15. The splitting of white light into its component colours is called:
    (a) reflection
    (b) refraction
    (c) dispersion
    (d) scattering
16. Which of the following is not a fossil fuel?
    (a) Coal
    (b) Petroleum
    (c) Natural gas
    (d) Nuclear energy

For Questions 17 to 20, 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 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 magnetic field produced by a current-carrying solenoid is independent of its length and cross-sectional area.
    Reason (R): The magnetic field inside the solenoid is uniform.
18. Assertion (A): Food chains are generally short, with three or four trophic levels.
    Reason (R): A large amount of energy is lost at each trophic level.
19. Assertion (A): In human beings, the sex of the child is determined by the father.
    Reason (R): A human male has one X and one Y chromosome.

20. Assertion (A): A convex mirror is used as a rear-view mirror in vehicles.
    Reason (R): A convex mirror always forms a virtual, erect, and diminished image.

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## Section B (Very Short Answer Questions - 2 marks each)

21. What is meant by the reactivity series of metals? Arrange the following metals in the decreasing order of their reactivity: Na, K, Cu, Ag.
22. State two differences between asexual and sexual reproduction.
23. An electric lamp of 100 Ω, a toaster of resistance 50 Ω, and a water filter of resistance 500 Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances, and what is the current through it?[9]
24. What is ozone and how does it protect us from harmful UV radiation?
25. List two functions of the ovary of the human female reproductive system.
26. Why do we see a rainbow in the sky only after rainfall?

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## Section C (Short Answer Questions - 3 marks each)

27. What is a homologous series? Write the name and formula of the second member of the homologous series whose first member is ethyne.
28. What are the different ways in which individuals with a particular trait may increase in a population?
29. An object is placed at a distance of 10 cm from a convex mirror of focal length 15 cm. Find the position and nature of the image.
30. What is the role of the following in human digestion:
    (a) Hydrochloric acid
    (b) Trypsin
    (c) Lipase
31. Give reasons for the following:
    (a) Metals conduct electricity.
    (b) Ionic compounds have high melting points.
    (c) The sky appears blue on a clear day.
32. What is meant by the power of accommodation of the eye? How is it achieved?
33. How do Mendel's experiments show that traits may be dominant or recessive?

## Section D (Long Answer Questions - 5 marks each)

34. (a) What are magnetic field lines? List any three properties of magnetic field lines.
    (b) Describe an activity to show the magnetic field lines around a bar magnet.
    OR
    (a) What is an electromagnet?
    (b) How can a soft iron bar be converted into an electromagnet?
    (c) List two ways to increase the strength of an electromagnet.
35. (a) Draw a neat diagram of the human respiratory system and label the following parts:
    (i) Larynx (ii) Trachea (iii) Bronchi (iv) Lungs
    (b) Explain the mechanism of breathing in human beings.
36. (a) What is corrosion?
    (b) What are the two necessary conditions for the rusting of iron?
    (c) Suggest two methods to prevent the rusting of iron.
    (d) Why is iron not used in its pure state?

## Section E (Case-Based Questions - 4 marks each)

37. Read the following and answer any four questions from 37 (i) to 37 (v).
    A student has been collecting water from different sources. He is advised to check the pH of the water samples.10 The pH of a solution is a measure of its acidity or alkalinity. A pH scale ranges from 0 to 14. A solution with a pH of 7 is neutral. A solution with a pH less than 7 is acidic, and a solution with a pH greater than 7 is alkaline or basic. The student finds that the pH of the water samples are as follows: Tap water - 6.8, Distilled water - 7.0, Rainwater - 6.5, Seawater - 8.2.

(i) Which of the water samples is neutral?

(ii) Which of the water samples is alkaline?

(iii) Which of the water samples are acidic?

(iv) What is the effect of the acidic water samples on blue litmus paper?

(v) What is the colour of the pH paper in the seawater sample?

38. Read the following and answer any four questions from 38 (i) to 38 (v).
    The flow of energy in an ecosystem is unidirectional. The energy enters from the sun, is converted into chemical energy by the producers, and then passed on to the consumers. At each

trophic level, a significant amount of energy is lost to the environment as heat. The flow of energy can be represented by an energy pyramid.

(i) What is the ultimate source of energy in an ecosystem?

(ii) What is the role of producers in an ecosystem?

(iii) Why is the flow of energy in an ecosystem unidirectional?

(iv) What is the 10% law of energy transfer?

(v) If the energy available at the producer level is 1000 J, what will be the energy available at the secondary consumer level?

39. Read the following and answer any four questions from 39 (i) to 39 (v).
A person is unable to see objects distinctly placed at a distance greater than 2 m. This defect of vision can be corrected by using a lens of appropriate power.

(i) Name the defect of vision the person is suffering from.

(ii) What are the two possible causes of this defect?

(iii) Draw a ray diagram to show the eye defect.

(iv) Which type of lens is required to correct this defect?

(v) Calculate the power of the lens required to correct the defect.

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## Answer Key and Marking Scheme

### Section A

1. (d) 10 (1 mark)
2. (c) excretion (1 mark)
3. (a) generator (1 mark)
4. (c) Vas deferens (1 mark)
5. (a) Calcium (1 mark)
6. (c) ciliary muscles (1 mark)
7. (a) $CaO + H_2O \rightarrow Ca(OH)_2$ (1 mark)
8. (d) is the same at all points (1 mark)
9. (d) Cytokinin (1 mark)

10. (a) 4800 Ω (1 mark)
11. (c) -CHO (1 mark)
12. (b) synapse (1 mark)
13. (d) Cow dung (1 mark)
14. (b) Heredity (1 mark)
15. (c) dispersion (1 mark)
16. (d) Nuclear energy (1 mark)
17. (b) (1 mark)
18. (a) (1 mark)
19. (a) (1 mark)
20. (a) (1 mark)

Section B

21. The arrangement of metals in the decreasing order of their reactivity is called the reactivity series of metals.11 (1 mark)

Decreasing order of reactivity: K > Na > Cu > Ag (1 mark)

22.

| Sexual Reproduction | Asexual Reproduction |

| :--- | :--- |

| Two parents are involved | Only one parent is involved |

| Offspring are genetically different from the parents | Offspring are genetically identical to the parent |

(1 mark for each difference)

23. Total current, I = V/R_p = 220 / (1/ (1/100 + 1/50 + 1/500)) = 220 / ( (5+10+1)/500) = 220*16/500 = 7.04 A.

Resistance of the iron = V/I = 220/7.04 = 31.25 Ω. (1 mark for resistance, 1 mark for current)

24. Ozone ($O_3$) is a molecule formed by three atoms of oxygen. (1 mark)

It protects us from the harmful ultraviolet (UV) radiation from the sun by absorbing it. (1 mark)

25. (i) Production of female gamete or egg. (1 mark)

(ii) Secretion of female sex hormones, estrogen and progesterone. (1 mark)

26. After rainfall, water droplets in the atmosphere act as small prisms. When sunlight enters these droplets, it gets refracted and dispersed, and then internally reflected, and finally refracted again when it comes out of the raindrop. Due to this, a spectrum of light in the form of a rainbow is seen. (2 marks)

Section C

27. A homologous series is a series of compounds with the same functional group and similar chemical properties in which the successive members differ by a $-CH_2$ group. (1 mark)

First member of the alkyne series is ethyne ($C_2H_2$). The second member is propyne ($C_3H_4$). (1 mark for name, 1 mark for formula)

28. The different ways in which individuals with a particular trait may increase in a population are:

(i) Natural selection: If a trait is beneficial, the individual with that trait will survive and reproduce more, passing on the trait to the next generation.

(ii) Genetic drift: Random changes in the frequency of a trait in a population.

(iii) Mutation: Sudden changes in the genetic material that can lead to a new trait.

(1 mark for each point)

29. u = -10 cm, f = +15 cm

Using mirror formula, 1/v + 1/u = 1/f

1/v = 1/f - 1/u = 1/15 - 1/(-10) = 1/15 + 1/10 = (2+3)/30 = 5/30 = 1/6

v = +6 cm (1.5 marks for calculation)

The image is formed 6 cm behind the mirror. It is virtual and erect. (1.5 marks for position and nature)

30. (a) Hydrochloric acid: Creates an acidic medium in the stomach which is necessary for the action of pepsin. (1 mark)

(b) Trypsin: Digests proteins into peptones and proteoses. (1 mark)

(c) Lipase: Digests emulsified fats into fatty acids and glycerol. (1 mark)

31. (a) Metals have free electrons that can move and conduct electricity. (1 mark)

(b) Ionic compounds have strong electrostatic forces of attraction between the ions, which require a large amount of energy to break. (1 mark)

(c) The sky appears blue due to the scattering of sunlight by the particles in the atmosphere. Blue light is scattered the most because it has a shorter wavelength. (1 mark)

32. The ability of the eye lens to adjust its focal length is called accommodation. (1 mark)

This is done by the ciliary muscles, which change the curvature of the eye lens. (2 marks)

33. Mendel crossed a tall pea plant with a dwarf pea plant. In the F1 generation, all plants were tall. This shows that the tall trait is dominant over the dwarf trait. When the F1 plants were self-pollinated, in the F2 generation, both tall and dwarf plants were obtained in the ratio 3:1. This shows that the dwarf trait was present in the F1 generation but was not expressed, hence it is a recessive trait. (3 marks)

Section D

34. (a) Magnetic field lines are the imaginary lines used to represent the magnetic field. (1 mark)

Properties of magnetic field lines:

(i) They emerge from the north pole and merge at the south pole.

(ii) They are closed curves.

(iii) They never intersect each other. (Any three) (2 marks)

(b) Activity: Take a bar magnet and place it on a sheet of paper. Sprinkle some iron filings around the magnet. The iron filings will arrange themselves in a pattern that shows the magnetic field lines. (2 marks)

OR

(a) An electromagnet is a temporary magnet that works on the magnetic effect of current. (1 mark)

(b) A soft iron bar can be converted into an electromagnet by winding an insulated copper wire around it and passing a current through the wire. (2 marks)

(c) The strength of an electromagnet can be increased by:

(i) Increasing the number of turns in the coil.

(ii) Increasing the current flowing through the coil. (2 marks)

35. (a) Diagram of the human respiratory system with correct labelling. (3 marks)

(b) Mechanism of breathing:

(i) Inhalation: The diaphragm contracts and moves down, the rib cage moves up and out, increasing the volume of the thoracic cavity. This reduces the pressure inside the lungs, and air rushes in.

(ii) Exhalation: The diaphragm relaxes and moves up, the rib cage moves down and in, decreasing the volume of the thoracic cavity. This increases the pressure inside the lungs, and air is forced out. (2 marks)

36. (a) Corrosion is the process of slow eating up of metals by the action of air, moisture, or a chemical on their surface. (1 mark)

(b) The two necessary conditions for the rusting of iron are the presence of air (oxygen) and moisture (water). (1 mark)

(c) Two methods to prevent rusting of iron are:

(i) Painting

(ii) Galvanization (coating with a layer of zinc) (2 marks)

(d) Iron is not used in its pure state because pure iron is very soft and stretches easily when hot. (1 mark)

Section E

37. (i) Distilled water (1 mark)

(ii) Seawater (1 mark)

(iii) Tap water and Rainwater (1 mark)

(iv) They will turn blue litmus paper red. (1 mark)

(v) Greenish-blue or blue (1 mark)

(Any four to be attempted)

38. (i) Sun (1 mark)

(ii) Producers convert solar energy into chemical energy through photosynthesis. (1 mark)

(iii) The energy captured by the producers does not revert to the sun, and the energy passed on to the consumers does not come back to the producers. (1 mark)

(iv) Only 10% of the energy is transferred from one trophic level to the next. (1 mark)

(v) 10 J (Energy at producer level = 1000 J, at primary consumer level = 100 J, at secondary consumer level = 10 J) (1 mark)

(Any four to be attempted)

39. (i) Myopia or near-sightedness (1 mark)

(ii) (a) Excessive curvature of the eye lens. (b) Elongation of the eyeball. (1 mark)

(iii) Correct ray diagram showing myopia. (1 mark)

(iv) Concave lens (1 mark)

(v) The far point of the myopic eye is 2 m. So, f = -2 m.

Power, P = 1/f = 1/(-2) = -0.5 D (1 mark)

(Any four to be attempted)