CBSE Class 10 Science - 02
Solved Sample / Practice Paper - 2025-26
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Time allowed: 3 hours | 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.

Section A (Objective Type Questions - 1 mark each)

1. Which of the following is an acidic salt?
   (a) NaCl
   (b) Na_2SO_4
   (c) NH_4Cl
   (d) CH_3COONa
2. The autotrophic mode of nutrition requires:
   (a) Carbon dioxide and water
   (b) Chlorophyll
   (c) Sunlight
   (d) All of the above
3. The commercial unit of electrical energy is:
   (a) Joule
   (b) Watt

(c) Kilowatt-hour
(d) Volt-ampere

4. Which of the following is not a sexually transmitted disease?
   (a) Syphilis
   (b) Hepatitis
   (c) HIV-AIDS
   (d) Gonorrhoea
5. The process of extracting metals from their ores is called:
   (a) Metallurgy
   (b) Refining
   (c) Corrosion
   (d) Alloying
6. The defect of vision in which a person cannot see distant objects clearly is:
   (a) Hypermetropia
   (b) Myopia
   (c) Presbyopia
   (d) Astigmatism
7. The reaction in which heat is absorbed is called:
   (a) Exothermic reaction
   (b) Endothermic reaction
   (c) Combination reaction
   (d) Decomposition reaction
8. A device that reverses the direction of current in a circuit is called a:
   (a) Commutator
   (b) Motor
   (c) Generator
   (d) Galvanometer
9. The hormone responsible for the development of secondary sexual characters in males is:
   (a) Oestrogen
   (b) Testosterone
   (c) Adrenaline
   (d) Thyroxin
10. The equivalent resistance of two resistors of 2 Ω and 3 Ω connected in series is:
    (a) 1.2 Ω
    (b) 5 Ω
    (c) 6 Ω
    (d) 1 Ω
11. The functional group present in ethanoic acid is:
    (a) -OH
    (b) -COOH
    (c) -CHO
    (d) >C=O
12. The longest part of the alimentary canal is the:
    (a) Stomach
    (b) Small intestine

(c) Large intestine
(d) Oesophagus

13. The Chipko Andolan is associated with the conservation of:
    (a) Water
    (b) Forests
    (c) Soil
    (d) Wildlife
14. The term ‘gene’ was coined by:
    (a) Mendel
    (b) Darwin
    (c) Johannsen
    (d) Lamarck
15. The angle of incidence is equal to the angle of reflection. This is true for:
    (a) Plane mirrors only
    (b) Concave mirrors only
    (c) Convex mirrors only
    (d) All reflecting surfaces
16. Which of the following is a clean fuel?
    (a) Petrol
    (b) Diesel
    (c) CNG
    (d) Kerosene

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): A current-carrying conductor experiences a force when placed in a magnetic field.
    Reason (R): The force is maximum when the conductor is perpendicular to the magnetic field.
18. Assertion (A): The concentration of harmful chemicals is maximum at the highest trophic level.
    Reason (R): This phenomenon is known as biological magnification.
19. Assertion (A): The number of chromosomes in the parents and offspring of a particular species remains constant.
    Reason (R): This is due to the halving of chromosomes during gamete formation.
20. Assertion (A): A concave lens is used to correct myopia.
    Reason (R): A concave lens diverges the parallel rays of light.

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

21. What is thermit reaction? Write its one use.
22. What is pollination? Differentiate between self-pollination and cross-pollination.
23. An electric heater of resistance 8 Ω draws 15 A from the service mains for 2 hours. Calculate the rate at which heat is developed in the heater.
24. What are the advantages of using solar energy?
25. What is the function of the umbilical cord?
26. What is atmospheric refraction? Give two examples of phenomena caused by it.

Section C (Short Answer Questions - 3 marks each)

27. What are isomers? Draw the structures of two isomers of butane.
28. What are fossils? What do they tell us about the process of evolution?
29. An object is placed at a distance of 30 cm from a concave lens of focal length 15 cm. Find the position, nature, and size of the image.
30. What are the functions of the following in the human body:
    (a) Saliva
    (b) Bile juice
    (c) Pancreatic juice
31. Give reasons for the following:
    (a) The sun appears reddish at sunrise and sunset.
    (b) Danger signals are red in colour.
    (c) Twinkling of stars.
32. What is hypermetropia? How is it caused and how is it corrected?
33. What are the different methods of contraception?

Section D (Long Answer Questions - 5 marks each)

34. (a) What is a solenoid?
    (b) Draw the pattern of magnetic field lines of a current-carrying solenoid.
    (c) How can the strength of the magnetic field of a solenoid be increased?
    OR
    (a) What is the difference between direct current and alternating current?

(b) What is the advantage of AC over DC?
(c) What is the frequency of AC in India?

35. (a) Draw a neat diagram of the human brain and label the following parts:
(i) Cerebrum (ii) Cerebellum (iii) Medulla (iv) Hypothalamus
(b) Write one function of each of the labelled parts.

36. (a) What is the pH scale?
(b) What is the importance of pH in everyday life? (Give three points)
(c) A solution has a pH of 9. Is the solution acidic or basic? What is the effect of this solution on litmus paper?

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

37. Read the following and answer any four questions from 37 (i) to 37 (v).
The modern periodic table is based on the atomic number of elements. The elements are arranged in the increasing order of their atomic numbers. The vertical columns are called groups and the horizontal rows are called periods. There are 18 groups and 7 periods in the modern periodic table. The properties of elements are a periodic function of their atomic numbers.

(i) On what basis is the modern periodic table arranged?

(ii) How many groups and periods are there in the modern periodic table?

(iii) State the modern periodic law.

(iv) What is the trend of metallic character in a period and a group?

(v) An element has atomic number 17. To which group and period does it belong?

38. Read the following and answer any four questions from 38 (i) to 38 (v).
The nervous system is the control and coordination system of the body. It consists of the brain, spinal cord, and nerves. The brain is the main coordinating centre of the body. It is protected by the cranium. The spinal cord is a long, thin, tubular structure made up of nervous tissue, which extends from the medulla oblongata in the brainstem to the lumbar region of the vertebral column.

(i) What are the main parts of the nervous system?

(ii) What is the function of the brain?

(iii) What protects the brain?

(iv) What is the spinal cord?

(v) What is a reflex action?

39. Read the following and answer any four questions from 39 (i) to 39 (v).
    Ohm's law states that the current flowing through a conductor is directly proportional to the potential difference across its ends, provided the temperature and other physical conditions remain unchanged. The resistance of a conductor is the property of the conductor to resist the flow of charges through it. The SI unit of resistance is the ohm (Ω).

(i) State Ohm's law.

(ii) What is resistance?

(iii) What is the SI unit of resistance?

(iv) What are the factors on which the resistance of a conductor depends?

(v) A potential difference of 10 V is needed to make a current of 0.02 A flow through a wire. What potential difference is needed to make a current of 250 mA flow through the same wire?

Answer Key and Marking Scheme

Section A

1. (c) NH_4Cl (1 mark)
2. (d) All of the above (1 mark)
3. (c) Kilowatt-hour (1 mark)
4. (b) Hepatitis (1 mark)
5. (a) Metallurgy (1 mark)
6. (b) Myopia (1 mark)
7. (b) Endothermic reaction (1 mark)
8. (a) Commutator (1 mark)
9. (b) Testosterone (1 mark)
10. (b) 5 Ω (1 mark)
11. (b) -COOH (1 mark)
12. (b) Small intestine (1 mark)
13. (b) Forests (1 mark)
14. (c) Johannsen (1 mark)
15. (d) All reflecting surfaces (1 mark)
16. (c) CNG (1 mark)
17. (b) (1 mark)
18. (a) (1 mark)
19. (a) (1 mark)

20. (a) (1 mark)

Section B

21. The reaction of metal oxides with aluminium powder to produce molten metal is called thermit reaction. (1 mark)

Use: It is used to join railway tracks or cracked machine parts. (1 mark)

22. The transfer of pollen grains from the anther to the stigma of a flower is called pollination. (1 mark)

Self-pollination: Transfer of pollen grains from the anther to the stigma of the same flower or another flower of the same plant.

Cross-pollination: Transfer of pollen grains from the anther of a flower of one plant to the stigma of a flower of another plant of the same species. (1 mark for difference)

23. $P = I^2R = (15)^2 * 8 = 225 * 8 = 1800$ W (2 marks)

24. Advantages of solar energy:

(i) It is a renewable source of energy.

(ii) It does not cause any pollution. (1 mark for each)

25. The umbilical cord connects the foetus to the placenta and helps in the transport of nutrients and oxygen to the foetus and removal of waste products. (2 marks)

26. The refraction of light by the earth's atmosphere is called atmospheric refraction. (1 mark)

Examples: Twinkling of stars, apparent position of stars. (1 mark for two examples)

Section C

27. Isomers are compounds having the same molecular formula but different structural formulas. (1 mark)

Isomers of butane (C_4H_{10}):

(i) n-butane (ii) Iso-butane (2 marks for structures)

28. Fossils are the preserved remains or traces of ancient organisms. (1 mark)

They provide evidence for evolution by showing the changes in organisms over time and the evolutionary relationships between different species. (2 marks)

29. u = -30 cm, f = -15 cm

Using lens formula, 1/v - 1/u = 1/f

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

v = -10 cm (1.5 marks for calculation)

The image is formed at a distance of 10 cm on the same side as the object. It is virtual, erect, and diminished. (1.5 marks for position, nature, and size)

30. (a) Saliva: Contains salivary amylase which digests starch into sugar. (1 mark)

(b) Bile juice: Emulsifies fats and makes the medium alkaline. (1 mark)

(c) Pancreatic juice: Contains trypsin, amylase, and lipase which digest proteins, carbohydrates, and fats respectively. (1 mark)

31. (a) The sun appears reddish at sunrise and sunset due to the scattering of light by the atmosphere. At these times, the sunlight has to travel a longer distance through the atmosphere, and most of the blue light is scattered away, leaving the red light to reach our eyes. (1 mark)

(b) Danger signals are red in colour because red light is scattered the least by the particles in the atmosphere and can be seen from a long distance. (1 mark)

(c) The twinkling of stars is due to the atmospheric refraction of starlight. (1 mark)

32. Hypermetropia is the defect of vision in which a person can see distant objects clearly but cannot see nearby objects distinctly. (1 mark)

Causes: (i) The focal length of the eye lens is too long. (ii) The eyeball has become too small. (1 mark)

Correction: It is corrected by using a convex lens of appropriate power. (1 mark)

33. Different methods of contraception are:

(i) Barrier methods (e.g., condoms, diaphragm)

(ii) Chemical methods (e.g., oral pills, vaginal pills)

(iii) IUCDs (e.g., Copper-T)

(iv) Surgical methods (e.g., vasectomy in males, tubectomy in females) (3 marks)

Section D

34. (a) A solenoid is a coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder. (1 mark)

(b) Correct diagram of magnetic field lines of a solenoid. (2 marks)

(c) The strength of the magnetic field can be increased by:

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

(ii) Increasing the current flowing through the coil.

(iii) Using a soft iron core inside the solenoid. (2 marks)

OR

(a)

| Direct Current (DC) | Alternating Current (AC) |

| :--- | :--- |

| Flows in one direction only | Reverses direction periodically |

| Frequency is zero | Frequency is not zero |

(2 marks)

(b) AC can be transmitted over long distances without much loss of energy. (1 mark)

(c) The frequency of AC in India is 50 Hz. (2 marks)

35. (a) Correct diagram of the human brain with labelling. (3 marks)

(b) Functions:

(i) Cerebrum: Controls voluntary actions, thinking, memory, intelligence.

(ii) Cerebellum: Controls posture and balance of the body.

(iii) Medulla: Controls involuntary actions like heartbeat, breathing.

(iv) Hypothalamus: Controls body temperature, urge for eating and drinking. (2 marks)

36. (a) The pH scale is a scale for measuring the hydrogen ion concentration in a solution. (1 mark)

(b) Importance of pH in everyday life:

(i) In our digestive system.

(ii) For the survival of aquatic life.

(iii) In agriculture. (3 marks)

(c) The solution is basic. It will turn red litmus paper blue. (1 mark)

Section E

37. (i) Atomic number (1 mark)

(ii) 18 groups and 7 periods (1 mark)

(iii) The properties of elements are a periodic function of their atomic numbers. (1 mark)

(iv) Metallic character decreases in a period and increases in a group. (1 mark)

(v) Group 17, Period 3 (1 mark)

(Any four to be attempted)

38. (i) Brain, spinal cord, and nerves (1 mark)

(ii) To control and coordinate all the activities of the body. (1 mark)

(iii) Cranium or skull (1 mark)

(iv) The spinal cord is a long, thin, tubular structure made up of nervous tissue, which extends from the medulla oblongata to the lumbar region of the vertebral column. (1 mark)

(v) A reflex action is a sudden, involuntary response to a stimulus. (1 mark)

(Any four to be attempted)

39. (i) Ohm's law states that the current flowing through a conductor is directly proportional to the potential difference across its ends, provided the temperature and other physical conditions remain unchanged. (1 mark)

(ii) Resistance is the property of a conductor to resist the flow of charges through it. (1 mark)

(iii) Ohm (Ω) (1 mark)

(iv) Length of the conductor, area of cross-section, nature of the material, and temperature. (1 mark)

(v) $R = V/I = 10/0.02 = 500\ \Omega$

$V = IR = 0.25 * 500 = 125$ V (1 mark)

(Any four to be attempted)