
CBSE Sample Paper-04 (Unsolved)
SUMMATIVE ASSESSMENT –I
SCIENCE (Theory)
Class – X

Time allowed: 3 hours

Maximum Marks: 90

General Instructions:

- a) All questions are compulsory.
- b) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- c) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- d) Questions 4 to 6 in section A are two marks questions. These are to be answered in about 30 words each.
- e) Questions 7 to 18 in section A are three marks questions. These are to be answered in about 50 words each.
- f) Questions 19 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
- g) Questions 25 to 27 in section B are 2 marks questions and Questions 28 to 36 are multiple choice questions based on practical skills. Each question of multiple choice questions is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. What happens when Copper metal is dipped in Silver Nitrate solution? Give the balanced chemical equation for the change.
2. Name the mode of nutrition in Amoeba.
3. A wire of uniform area of cross-section is stretched to four times its original length. By what factor does its resistivity change?
4. "Sulphuric acid is a dibasic acid." Write two reaction equations to justify this statement and name the reaction products in the two cases.
5. How does control and coordination take place in plants?
6. State Faraday's law of electromagnetic induction. Express it mathematically.
7. Perform an activity to show that reaction between barium hydroxide and ammonium chloride is an exothermic or endothermic reaction.
8. What is redox reaction? Give two examples from everyday life situations where redox reactions are taking place.
9. How did Arrhenius define acids and bases? Choose a strong acid and a weak base from the following substances:
CH₃COOH, NH₄OH, HCl, KOH

10. Give chemical equations to show the reactions taking place when:
- Zinc carbonate is calcined.
 - Carbon di-oxide gas is bubbled into limewater for a long time.
11. (a) Explain what corrosion of iron means.
(b) Why is that aluminium which is more reactive than iron does not corrode like iron?
(c) How is corrosion of iron prevented by coating it with a layer of oil?
12. How do each of the following factors affect the productivity in the process of photosynthesis.
(a) Temperature (b) Water (c) Carbon dioxide
13. What happens to Glucose, which enters the nephron along with filtrate during excretion in human being? State two vital functions of kidney.
14. Sohan went to his town, Agra, 200 km away from Delhi with his father in a car. On the way there was lot of traffic jam. Sohan, after reaching his town, felt nauseated and had a headache because he had inhaled lots of toxic polluted gases.
Read the above passage and answer the following questions:
(a) Which system/part of his body has been affected?
(b) What steps could be taken to reduce air pollution?
(c) What values are exhibited by people?
- [Value Based Question]
15. Two identical resistors, each of resistance of 2 ohm, are connected in turns
(i) in series and
(ii) in parallel to a battery of 12 volts.
Calculate the ratio of power consumed in two cases.
16. What is a commutator? How does it bring direct current? Show the output potential of an AC and DC generator.
17. What are the advantages and disadvantages of using a Solar cooker? Are there places where solar cookers would have limited utility?
18. If energy in the universe is constant, why is the world yelling out for energy crisis? What does judicious use of energy imply?
19. Compound A when dissolved in water gives compound B and liberates heat. Compound A is used in whitewashing. Compound B reacts with CO_2 to form a white precipitate of compound C. Identify compounds A, B and C. Also write the equations involved.

Or

- In the electrolysis of water,
 - Name the gas collected at the cathode and anode.
 - Why is the volume of gas collected at one electrode double the other?
 - Why is a few drops of dil. H_2SO_4 added to the water?
- What change will you observe if white silver chloride is placed in sunlight? Write an equation for the reaction and the type of the reaction.

20. A metal X is found in form of filings which burn vigorously when sprinkled on flame. When these filings are heated with sulphur, a black coloured compound Y is formed which is not attracted by magnet. X reacts with dil. HCl to liberate hydrogen gas. X reacts with steam to form Z along with hydrogen gas. Identify X, Y and Z and write the chemical reactions involved.

Or

A reddish brown metal X on heating forms a black coating of oxide Y on its surface. The metal does not react with dil. HCl and dil. H_2SO_4 . It reacts with hot conc. H_2SO_4 to give a pungent smelling gas similar to that produced by burning matchstick. The metal oxide reacts with dil. H_2SO_4 to form a blue solution Z. Identify X, Y, Z and write chemical reactions involved. The metal reacts with dil. HNO_3 to liberate colourless and odourless gas A and write conc. HNO_3 it liberates a brown gas B. Identify A and B also.

21. How does the major nutrient in chapattis eaten by you in your food get digested and finally absorbed by the alimentary canal?

Or

How does the butter in your food get digested and absorbed in the body? Explain in detail.

22. (a) Draw a neat labelled diagram of an AC generator.
(b) Write the use of (i) Slip rings, (ii) Brushes and (iii) Armature in an AC generator.

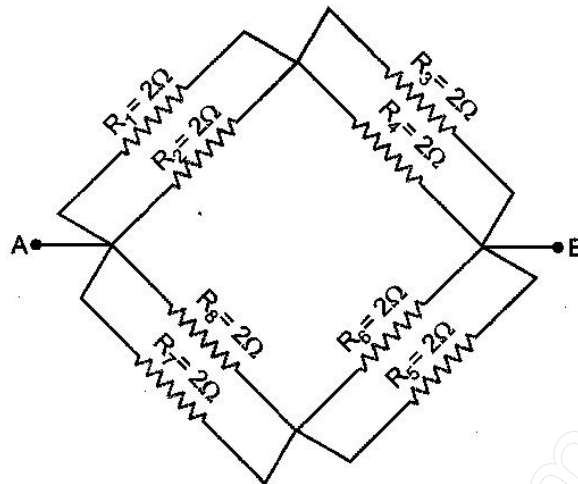
Or

- (a) What is an electromagnetic induction? Write the rule that is used to find the direction of induced current.
(b) Explain how the movement of a magnet towards or away from a coil carrying a galvanometer produces current.

23. What are magnetic field lines? How is the direction of a magnetic field at a point determined? Draw the magnetic field lines (including field directions) of the magnetic field due to a circular coil of current. Name any two factors on which the magnitude of the magnetic field due to this coil depends.

Or

Find the equivalent resistance across the two ends A and B of the circuit given below:



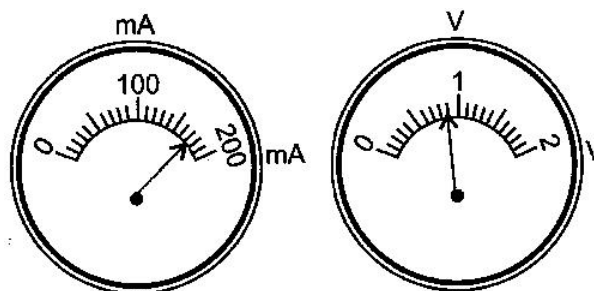
24. (a) What is a solenoid?
 (b) Draw the pattern of magnetic field produced around a current carrying solenoid. Compare this field to that of a bar magnet.
 (c) What happens to the magnetic field when the current through the solenoid is reversed?

Or

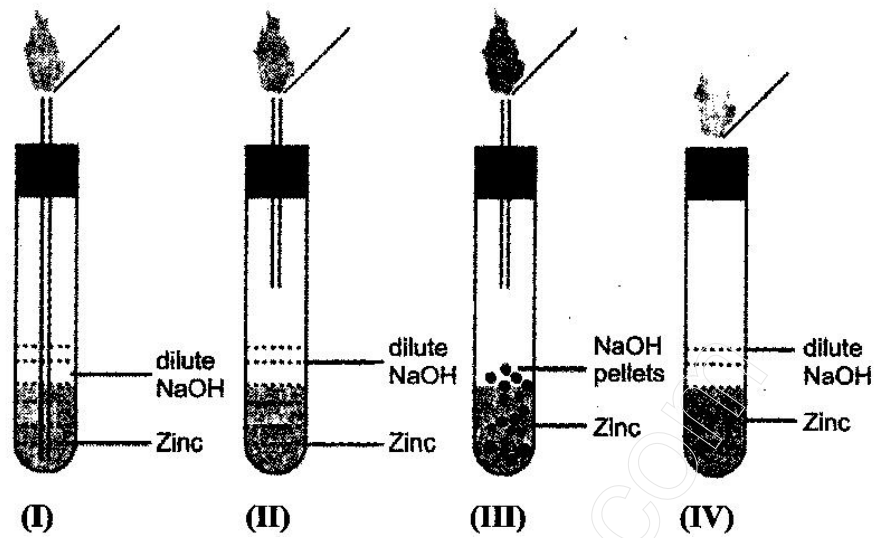
- (a) Draw the patterns of magnetic field lines through and around a current carrying solenoid. What does the magnetic field pattern inside the solenoid indicate?
 (b) How can this principle be utilized to make an electromagnet?
 (c) State two ways by which strength of this electromagnet can be increased?

Section B

25. A student added dilute HCl to a test tube containing Zinc granules and made following observations.
- I. The Zinc surface became dull and black.
 - II. A gas evolved which burnt with a pop sound.
 - III. The solution remained colourless.
- (a) Which is the correct observation?
 (b) Justify your answer.
26. What are the characteristics of respiration in plants?
27. The current flowing through the resistor and the potential difference developed across its ends are shown in the figure. Calculate the value of resistance?



28. Which one of the following set ups is the most appropriate for the evolution of hydrogen gas and its identification:



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

29. The colour of FeSO_4 solution is:

- (a) Pale green (b) Yellow (c) colourless (d) Blue

30. What happens when copper is added to zinc sulphate solution:

- (a) No reaction takes place as copper is less reactive than zinc.
 (b) The solution becomes colourless and Zn metal gets deposited.
 (c) The solution remains blue and Zn metal gets deposited.
 (d) No reaction takes place because copper is more reactive than Zn.

31. Hormone is a/an:

- (a) Chemical messenger (b) Glandular secretion
 (c) Enzyme (d) Excretory product

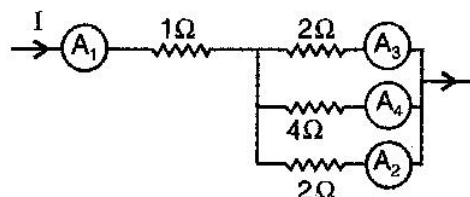
32. Relaxin is secreted by:

- (a) corpus luteum (b) ovary (c) pituitary (d) pineal

33. When two resistors $2\ \Omega$ and $1\ \Omega$ are connected in parallel, the equivalent resistance will be:

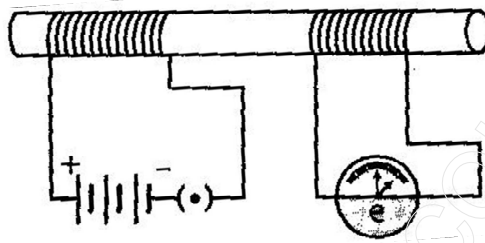
- (a) $>2\ \Omega$ (b) $<2\ \Omega$ (c) $<1\ \Omega$ (d) $=1\ \Omega$

34. The ammeter showing the maximum current is:



- (a) A_1 (b) A_2 (c) A_3 (d) A_4

35. The major problem in harnessing nuclear energy is how to:
- (a) split nuclei.
 - (b) sustain the reaction.
 - (c) dispose off spent fuel safely.
 - (d) convert nuclear energy into electrical energy.
36. In the arrangement shown in figure there are two coils wound on a non-conducting cylindrical rod. Initially the key is not inserted. If the key is inserted and later removed, then:



- (a) the deflection in the galvanometer remains zero throughout.
- (b) there is a momentary deflection in the galvanometer but it dies out shortly and there is no effect when the key is removed.
- (c) there are momentary galvanometer deflections that die out shortly the deflections are in the same direction.
- (d) there are momentary galvanometer deflections that die out shortly the deflections are in opposite directions.