

For more sample papers visit : www.4ono.com

CBSE Sample Paper-05
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. Calcium Oxide reacts with water to form Calcium hydroxide. What type of chemical reaction is it?
2. Name the type of blood vessels which carry blood from organs to the heart.
3. Should the heating element of an electric iron be made of iron, silver or nichrome wire?
4. How is Plaster of Paris is different from gypsum? How may they be interconverted? Write one use of Plaster of Paris.
5. What is phytohormone? Name any two phytohormone.
6. Differentiate between short circuiting and overloading of electric circuits. How does a fuse protect an electric circuit.
7. Perform an activity to show that burning of sulphur in air is a combination reaction.
8. What are the differences between Displacement and Double displacement reactions? Write examples also.
9. One day Lucky's mother after taking meal felt pain and irritation in her stomach. His father was out of station. He was an intelligent boy, He remembered his teacher's statement and gave her mother some baking soda solution, which gave her a relief from pain and irritation of stomach. Read the above passage and answer the following questions:
 - (i) Which information given by the teacher help him to select the baking soda as remedy?

- (ii) Why he selects baking soda as a cure?
 (iii) State any two values that you have learned from this passage.

[Value Based Question]

10. Write chemical equations for the following reactions takes place:
 (i) A piece of calcium metal is placed in water.
 (ii) Ammonia gas comes in contact with hydrogen chloride gas.
 (iii) Sulphur is heated with concentrated H_2SO_4 .
11. (a) How are metalloids different from metal? Name a metalloid.
 (b) Differentiate between the roasting and calcinations processes used in metallurgy. Give an example of each.
12. State the role of following in the human respiratory system:
 (a) Nasal cavity (b) Diaphragm (c) Alveoli
13. How does the blood circulate between lungs and heart in human beings? Give two functions of lymph in human body.
14. Define nerve impulse. Which structure in a neuron helps to conduct a nerve impulse:
 (i) towards the cell body.
 (ii) away from the cell body
15. A torch bulb is rated 2.5 V and 7560 mA. Calculate:
 (i) its power
 (ii) its resistance
 (iii) the energy consumed if this bulb is lighted for 4 hours.
16. What is the relation for force experienced by a current carrying straight conductor placed in a magnetic field? Under what condition is this force maximum?
17. Can any source of energy be pollution free? Why or why not?
18. What are the limitations of extracting energy from (i) wind, (ii) waves and (iii) tides?
19. Write the balanced chemical equations for the following and identify the type of reaction in each case:
 (a) Potassium bromide (aq) + Barium iodide (aq) \longrightarrow
 Potassium iodide (aq) + Barium bromide (s)
 (b) Zinc carbonate (s) \longrightarrow Zinc oxide (s) + Carbon dioxide (g)
 (c) Hydrogen (g) + Chlorine (g) \longrightarrow Hydrogen chloride (g)

(d) Magnesium (s) + Hydrochloric acid (aq) \longrightarrow Magnesium chloride (aq) + Hydrogen (g)

(e) Iron (III) oxide (s) + Carbon monoxide (g) \longrightarrow Iron (s) + Carbon dioxide (g)

Or

(a) A student heats 2 g of FeSO_4 in dry boiling tube and observes reddish brown solid is left behind and a smell of burning sulphur is observed. Identify the type of reaction. Write a chemical equation to represent the above change.

(b) Why is FeCl_2 formed instead of FeCl_3 when iron reacts with dil. HCl ?

20. (a) What is meant by refining of metals? In electrolytic refining of metal, name cathode, anode and electrolyte used.

(b) Give four differences between properties of metals and non-metals.

(c) Give two differences between ionic compounds and covalent compounds.

Or

(a) What are salts? Give one example.

(b) Which of the following is strong acid, $\text{pH} = 1$ or $\text{pH} = 6$?

(c) Why should we add conc. H_2SO_4 to water and not water to conc. H_2SO_4 to get dil. H_2SO_4 ??

(d) Give one advantage of soap over detergent.

(e) Why should we not store sour things in copper vessels?

21. (i) State two structural differences between an artery and a vein.

(ii) Name a non-nucleated cell present in human blood and state one function of this cell.

(iii) Draw a labelled diagram of human heart.

Or

Name the main organs of the human digestive system in the order they participate in the process of digestion. Describe how digestion of carbohydrates and proteins take place in our body.

22. (a) List three sources of magnetic fields.

(b) State the rule to determine the direction of a:

(i) magnetic field produced around a straight conductor carrying current.

(ii) force experienced by a current carrying straight conductor placed in a magnetic field which is perpendicular to it.

(iii) current induced in coil due to its rotation in a magnetic field.

Or

(a) Name some devices in which electric motor is used.

(b) A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is:

(i) pushed into the coil.

(ii) withdrawn from inside the coil.

(iii) held stationary inside the coil?

23. (a) Two identical resistors each of resistance $10\ \Omega$ are connected in (i) series, (ii) parallel to a

6 V battery.

Calculate the ratio of power consumed in the combination of resistors in two cases.

(b) Draw the circuit diagram of the two-cases.

Or

Given that $R_1 = 10\ \Omega$, $R_2 = 40\ \Omega$, $R_3 = 30\ \Omega$, $R_4 = 20\ \Omega$ and R_A is the parallel combination of R_1 and R_2 whereas R_B is the parallel combination of R_3 and R_4 . Combination R_A is connected to the positive terminal of 12 V battery while combination R_B is connected to the negative terminal. Ammeter A is connected between the resistor R_A and R_B .

(a) Find R_A and R_B . Also calculate total resistance in the circuit.

(b) Draw the circuit diagram showing above combinations connected to battery and ammeter.

24. (a) What is electromagnetic induction?

(b) Describe the various methods of producing induced current.

(c) State the rule which gives the direction of induced current.

Or

(a) Name the scientist who discovered that a moving magnet can be used to number of turns are wound over a cardboard cylinder. Coil 1 is connected to battery and a plug key. Coil 2 is connected to a galvanometer. How will the galvanometer reading change when:

(i) Key is plugged in and

(ii) Key is taken out.

Give reason for your answer.

(b) Name and state the rule used for determination of direction of induced current due to a changing magnetic field and give one practical application of this phenomenon in everyday life.

SECTION - B

25. (a) A gas is neither combustible nor supporter of combustion, turn moist blue litmus paper red, used in cold drinks. Identify this gas.

(b) Justify your answer also.

26. (i) To set up the experiment to show that light is necessary for photosynthesis, experimental leaves should be taken for use from:

(a) Any flowering plant

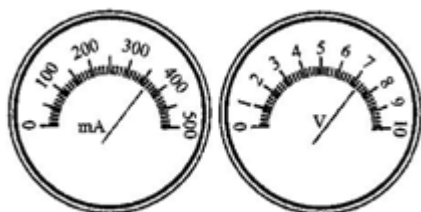
(b) Newly emerged sapling

(c) Destarched potted plant

(d) Healthy plant growing on the plant

(ii) Give reason.

27. The current flowing through a conductor and the potential difference across its two ends are as per readings of the ammeter and the voltmeter shown in the figure. Calculate the resistance of the conductor



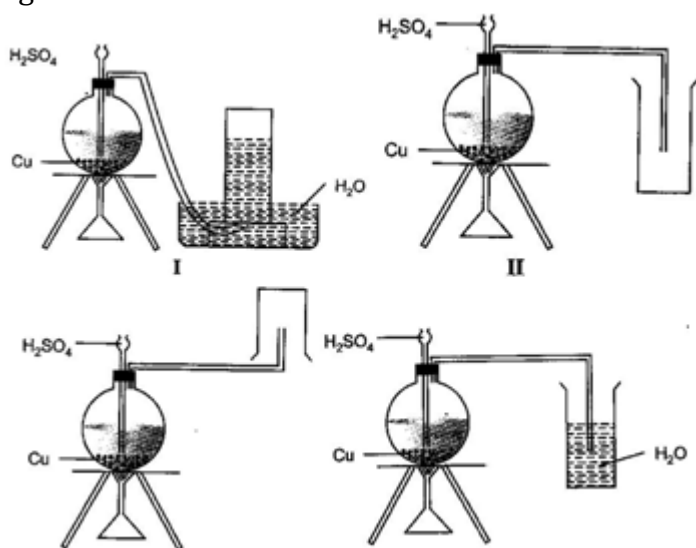
28. Given below are certain chemical properties of substances:

- I. It turns blue litmus red.
- II. It turns red litmus blue.
- III. It reacts with zinc and a gas evolves.
- IV. It reacts with solid sodium carbonate to give brisk effervescence.

Which out of these properties are shown by dilute hydrochloric acid:

- (a) I and II only (b) I and III only (c) I, III and IV only (d) II, III and IV only

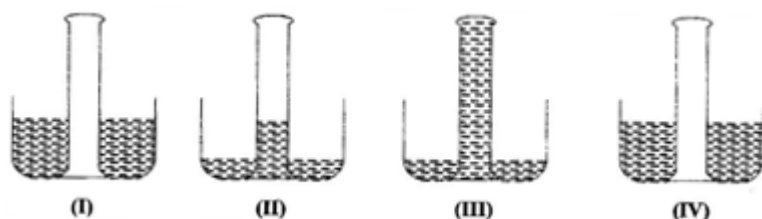
29. To prepare and collect SO_2 gas in the school laboratory, the correct set up is represented in the figure:



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

30. Four gas jar filled with sulphur dioxide gas were inverted into troughs of water by four students and the following observations and inference were reported:

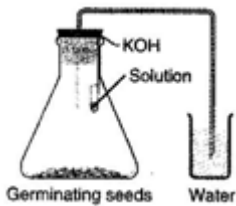
- I. Water did not enter the gas jar and sulphur dioxide is insoluble in water.
- II. A small amount of water entered the gas jar slowly and sulphur dioxide is sparingly soluble in water.
- III. Water rushed into the gas jar and sulphur dioxide is highly in water.
- IV. Water did not enter the gas jar and sulphur dioxide is soluble in water.



The correct set of observations and inference drawn is reported in:

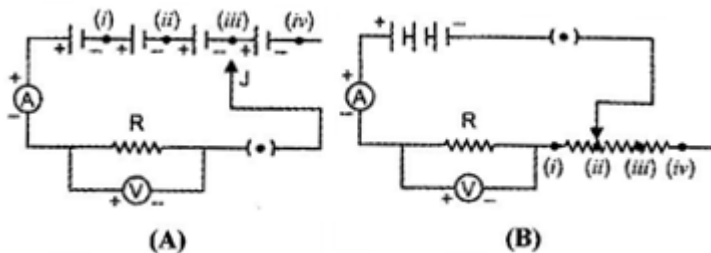
- (a) I (b) II (c) III (d) IV

31. In the experiment shown in the figure, water is found to rise in the bent tube:



The reason is that:

- (a) seeds use up oxygen in the flask.
 (b) carbon dioxide is given out by the germinating seeds.
 (c) germinating seeds attract water from the beaker.
 (d) seeds use oxygen and release carbon dioxide which is absorbed by potassium hydroxide.
32. The respiratory rhythm centre is present in the:
 (a) medulla oblongata (b) cerebellum
 (c) cerebrum (d) None of these
33. To study the dependence of current (I) on the potential difference (V) across a resistor, two students used the two set ups shown in figure (A) and (B) respectively. They kept the contact J in four different positions, marked (i), (ii), (iii), (iv) in the two figures.



- For the two students, the value of emf used by student (A) and the resistance due to the rheostat used by the student (B), will each be minimum when the contact J is in the position:
- (a) (iv) in both the set ups.
 (b) (i) in both the set ups.
 (c) (iv) in set up (A) and (i) in set up (B)
 (d) (i) in set up (A) and (iv) in set up (B)
34. An ammeter has 20 divisions between mark 0 and mark 2 on its scale. The least count of the ammeter is:
 (a) 0.02 A (b) 0.01 A (c) 0.2 A (d) 0.1 A
35. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilization:
 (a) Nuclear energy (b) Thermal energy (c) Solar energy (d) Geothermal energy
36. Commercial electric motors do not use:
 (a) an electromagnet to rotate the armature.
 (b) effectively large number of turns of conducting wire in the current carrying coil.
 (c) a permanent magnet to rotate the armature.
 (d) a soft iron core on which the coil is wound.

For more sample papers visit :

www.4ono.com