CBSE 10th Metals and Non-Metals Unsolved Paper

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SECTION-A

Q.1. An iron nail was suspended in $CuSO_4$ solution and kept for a while the solution is

(a) Remained blue and coating was found on the nail.
(b) turned green and a coating was formed on the nail'
(c) remained blue and no coating was formed on the nail .
(d) turned green and no coating was formed on the nail .

Q.2. The earthy impurities associated with mineral used in metallurgy are called

(a) Slag
(b) Flux
(c) Gangue
(d) Ore

Q.3. Name two metals which are found in nature in the free state.

Q.4. Royal water is prepared by mixing two acids 'A' and 'B'. It can dissolve gold and platinum. It is highly corrosive and fuming liquid. Identify 'A' and 'B'. What is the ratio in which 'A' and 'B' are mixed

Q.5. What is the valency of phosphorus with atomic number 15?

Q.6. Which of the following pairs will give displacement reactions?

(a) NaCl solution and copper metal
(b) $MgCl_2$ solution and aluminum
(c) $FeSO_4$ solution and silver metal
(d) $AgNO_3$ solution and copper

Q.7. A green layer is gradually formed on a copper plate left exposed to air for a week in a bathroom. What could this green substance be?

Q.8. The correct decreasing order of the metals in the activity series is:

(a) Ca, Mg, Ni, Fe
(b) Ni, Ca, Mg, Fe
(c) Ca, Mg, Fe, Ni
(d) Mg, Ca, Fe, Ni

Q.9. A mineral is known as ore if metal

(a) Cannot be produced from it
(b) Can be produced from it
(c) Can be extracted from it profitably
(d) Is very costly

Q.10. During smelting, an additional substance is added which combines with impurities to form a fusible product. It is known as

(a) Slag
(b) Mud
(c) Gangue
(d) Flux

SECTION-B

Q.11. Name the following:

(a) A metal, which is preserved in kerosene.
(b) A lustrous coloured non-metal.
(c) A metal, which can melt while kept on palm.
(d) A metal, which is a poor conductor of heat.

12. Explain why calcium metal after reacting with water starts floating on its * surface. Write the chemical equation for the reaction. Name one more metal that starts floating after some time when immersed in water.

Q.13. Why do ionic compounds have high melting points?

Q14. Which metals do not corrode easily?

Q.15. .Elements magnesium and oxygen respectively belong to group 2 and group 16 of the Modern Periodic Table. If the atomic numbers of magnesium and oxygen are 12 and 8 respectively, draw their electronic configurations and show the process of formation of their compound by transfer of electrons.

Q.16. Why does copper not liberate hydrogen on reaching with dilute sulphuric acid?

Q.17. When a metal X is treated with cold water, it gives a base Y with molecular formula XOH (Molecular mass = 40) and liberates a gas Z which easily catches fire. Identify X, Y and Z.

SECTION-C

Q.18. A group of a students looked at different metals and metal sulphate solutions given is a tabular form From the data, answer the following:

Metal	Metal sulphate solution	Colour
1) Chromium	Chromium sulphate	Green
2) Cobalt	Cobalt sulphate	Pink
3) Copper	Copper sulphate	Blue
4) Magnesium	Magnesium sulphate	Colourless

(a) Which metal reacted with all other sulphate solution?
(b) Which metal did not react with any other metal sulphate solution?
(c) Arrange the metals in decreasing order of reactivity

Q.19. What is cinnabar? How is metal extracted from cinnabar? Explain briefly.

Q.20. Arrange the following metals in decreasing order of their reactivity:
(1) Cu, Ca, Mg, Na, Zn
(2) You are provided with three metals: sodium, magnesium and copper, Using only water as the reactant, how will you identify each of them
(3) Which metal listed in (1) is most likely to occur in the native state?

Q.21. (a)State the electron-dot structure for calcium and sulphur.
(b) Show the formation of CaS by the transfer of electrons.
(c) Name the ions present in this compound CaS. Atomic number of Ca = 20, O = 16.

Q.22. You are given a hammer a battery, a bulb, wires and switch
(a) How could you use them to distinguish between samples of metals and non metals?
(b) Assess the usefulness of these tests to distinguish between metals and non-metals

Q.23. (a) Write the electron dot structures for potassium and chlorine.
(b) Show the formation of KCl by the transfer of electrons.
(c) Name the ions present in the compound, KCl.

Q.24. Define the following terms:
(a) Minerals
(b) Ores
(c) Gangue

SECTION-D

Q.25. (a) An ore on treatment with dilute hydrochloric acid produces brisk effervesces. What type of ore is this? What steps will be required to obtain metal from the enriched ore.,
(b) Copper coin is kept immersed in silver nitrate solution for some time. What change will take place in coin and colour of the solution ? Write balanced chemical equation of the reaction involve

Q.26. Give reasons:
(a) Platinum, gold and silver are used to make jewellery.
(b) Sodium, potassium and lithium are stored under oil.
(c) Aluminum is highly reactive metal, yet it is used to make utensils for cooking.
(d) Carbonate and sulphides ores are usually converted into oxides during the process of extraction.

Q.27. How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle ? Why the same process cannot be applied for them? Explain giving equations, the extraction of sodium.

Q.28. Hydrogen gas is evolved by reacting a piece of magnesium ribbon with water:
(1) Describe how it could be shown that the gas collected is hydrogen.
(2) Write a chemical equation for the reaction taking place between magnesium and water using symbols.
(3) Suggest how the appearance of magnesium would change after a week.
(4) A few drops of universal indicator solution were added to water in the beaker. What colour would expect to see and what pH would this colour indicate?

Q.29. What are alloys? How are they made? Name the constituents and uses of brass, bronze and solder..

Q.30. Write the names and symbols of two most reactive metals. Explain by drawing electronic structure how any one of the two metals react with a halogen. State any four physical properties of the compound formed.