

SRI VIDYA MANDIR MATRIC. HR.SEC.SCHOOL-PALACODE**LN- 12 PERIODIC CLASSIFICATION OF ELEMENTS UNIT TEST****I. Choose the correct answer:****14X1 =14**

- Which is not a ore of aluminium
 a) **Bauxite** b) **corundum** c) **heamitite** d) **cryolite**
- Purity of gold is measured in carat to calculate purity of gold _____
 a) $\frac{22}{24} \times 100$ b) $\frac{24}{22} \times 100$ c) $\frac{22}{26} \times 100$ d) $\frac{25}{26} \times 100$
- When con. HNO_3 reacts with iron, iron loses its reactivity. Give reason
 a) **layer of iron nitrate formation** b) **layer of iron oxide formation**
 c) **layer of NO_2 formation** d) **layer of NO_3 formation**
- The molecular formula of rust is
 a) **Fe_2O_3** b) **$\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$** c) **$\text{Fe}_3\text{O}_4 \cdot x\text{H}_2\text{O}$** d) **$\text{Fe}(\text{NO}_3)_2$**
- According to Mendeleev's periodic law the elements were arranged in the periodic table in the order of
 a) **Increasing atomic number** b) **decreasing atomic number**
 c) **Increasing atomic mass** d) **decreasing atomic mass**
- If copper I kept exposed to damp air for a considerable time, it gets green coating on its surface. This is due to formation of
 a) **Hydrated copper sulphate** b) **copper oxide**
 c) **Basic copper carbonate** d) **copper nitrate**
- In the modern periodic table, periods and groups are given. Periods and Groups indicate _____
 i) **Rows and Columns** ii) **Columns and Rows**
- The third period contains elements. Out of these elements, how many elements are non-metals? **(8,5)**
- Gold does not occur in the combined form. It does not react with air or water. It is in the _____ state. **(native / combined)**
- Which method is used for concentration of those ore obtained in the sulphide form?
 a) **Leaching** b) **magnetic separation** c) **froth floatation** d) **calcination**
- Which are the components of stainless steel?
 a) **Cu, Zn, Ni** b) **Fe, Cr,C,Ni** c) **Fe, C, Sn** d) **Cu, Cr, Sn**
- Rusting of iron takes place in
 a) **Normal water** b) **distilled water** c) **both A and B** d) **none**
- An alloy of aluminium which is used for making aircraft
 a) **Bronze** b) **brass** c) **magnalium** d) **duralumin**
- Smelting is _____ process.
 a) **Oxidation** b) **reduction** c) **redox** d) **combination**

II. Answer the following (any 13)**13x 2 = 26**

- a) A process employed for the concentration of sulphide ore is _____.
 (Froth floatation / gravity separation)
 b) Coating the surface of iron with other metal prevents it from rusting. If it is Coated with a thin layer of zinc, it is called _____.
 (Galvanization / painting / cathodic protection)
- Can the rusting of iron nails occur in distilled water? Justify your answer. Iron reacts with con. HCl and con. H_2SO_4 , but it does not react with con. HNO_3 . Justify your answer with proper reasons.

17. X is a silvery white metal. X reacts with oxygen to form Y. The same compound is obtained from the metal on reaction with steam with the liberation of hydrogen gas. Identify X and Y.
18. Here are a few statements related to alloys. Identify the incorrect ones and correct them.
- It is a homogenous mixture of metals.
 - Zinc amalgam is used in dental filling.
 - Duralumin is used for making statues, coins, bells and gongs.
 - Zinc is the solvent of brass.
19. Complete the following table:

Zone	Temperature	Chemical Process
Combustion zone		
		$\text{CaCO}_3 \longrightarrow \text{CaO} + \text{CO}_2$
		$\text{CaO} + \text{SiO}_2 \longrightarrow \text{CaSiO}_3$
	400°C	

20. When iron is exposed to moist air, a reddish brown substance is deposited on it. What is it? Give its composition.

21. Fill in the blanks:

- On passing steam over red hot iron ----- is formed with hydrogen.
(FeO / Fe₂O₃ / Fe₃O₄ / FeCO₃)
- The components of duralumin are (Al,Mg,Mn,Cu / Al, Mn, Zn,Cu)

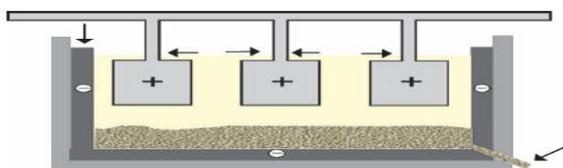
22. Difference between ore and mineral

23. Guess who I am?

- I am a cheap metal but highly reactive. Therefore, I sacrifice myself to save objects made of iron.
- I am formed when matrix and flux react

24. Give a single term for each of the following:

- The process of extracting ores from the earth's crust.
 - The process of reducing the roasted oxide ore to metal under molten condition
25. Look at the diagram and answer the following questions



- i) What process does the diagram represent?

- ii) Why does the graphite rod need to be replaced often?

26. Write any two uses of iron?
27. List out the methods of prevention of corrosion.
28. **Rewrite the following statements after correction, if necessary:**
- Periods are the horizontal rows of elements
 - Aluminium is a good oxidizing agent.
29. How does the metallic character of elements vary on moving from?
- Left to right in a period?
 - From top to bottom in a group? Give reason
30. **Pick the odd one:** a) galvanization, electroplating, sacrificial protection, electrolytic refining,
b) Gold, silver, aluminium, platinum

SRI VIDYA MANDIR MATRIC. HR.SEC.SCHOOL-PALACODE**CLASS: X****LN-12 METALS AND METALLUGY****SUBJECT: Chemistry****I. Choose the correct answer:**

- The process of removal of impurities from a crude metal is called
(a) Concentration (b) Calcination (c) Refining (d) Roasting
- The impurities present in the ore when mined are called
(a) Flux (b) slag (c) gangue (d) roasting
- Calcination and roasting are
(a) Different names of the same operation (b) used for the purification of metals
(c) Usually carried in the reverberatory furnace (d) employed for the concentration of the ore
- Which one is true out of the following?
(a) All ores are minerals but all minerals are not ores
(b) All minerals are ore but all ores are not minerals
(c) Both the above statements are wrong
- The sulphide ores are generally concentrated by
(a) Gravity separation (b) froth floatation process (c) magnetic separation
- Aluminium is a self protecting metal due to the formation of its on the surface.
(a) Thick layer (b) oxide (c) chloride (d) carbonate
- The substance mixed in the separation of impurities from ores is
(a) Slag (b) flux (c) catalyst (d) smelter
- Generally, the extraction of alkali and alkaline earth metals is done by
(a) Electrolytic reduction method (b) reduction with carbon
(c) alumino thermic process (d) metal displacement method
- The impurities associated with minerals are called
(a) Slag (b) Flux (c) Gangue (d) Ore
- Most of the metals which occur in native state
(a) Are very reactive (b) have low reactive (c) can form silicates readily (d) are not reactive
- The process of extracting the metal from its ore is called
(a) Refining (b) Concentration (c) Leaching (d) Metallurgy
- The method for the purification of impure metals which is based upon the phenomenon of electrolysis is called
(a) Electro refining (b) Hydrometallurgy (c) Poling (d) Liqueation
- Carbon is used as a reducing agent in the extraction of
(a) Chromium (b) Copper (c) silver (d) Zinc
- Coke is used in metallurgical process chiefly as:
(a) flux (b) reducing agent (c) slag (d) oxidizing agent
- The process in which lighter earthy particles are freed from the heavier particle by washing with water is called
(a) Leaching (b) Levitation (c) Liqueation (d) Gravity separation

16. In metallurgy, flux is a substance used to convert
(a) Insoluble impurities to a fusible mass (b) minerals into silicates
(c) Soluble particles into insoluble particles (d) fusible impurities to infusible impurities
17. In aluminothermic process aluminum acts as
(a) Oxidizing agent (b) reducing agent (c) flux (d) none of these
18. Which of the following ores cannot be concentrated by froth floatation process?
(a) Bauxite (b) Cinnabar (c) Galena (d) copper pyrite
19. Electrolytic reduction method is used for
(a) Highly electropositive metals (b) highly electronegative metals
(c) Metalloids (d) lanthanides only
20. The process of heating the ore in the absence of air is called
(a) Roasting (b) liquation (c) calcinations (d) smelting
21. In electro refining, impure metal is used as
(a) Anode (b) cathode (c) anode or cathode (d) electrolyte
22. The changes that occur during roasting could be
(a) Removal of moisture and volatile matter (b) conversion of sulphide ore into oxide
(c) Decomposition of complex ore (d) any one or a combination of 1, 2, 3
23. Roasting results in the production of metal in the case of
(a) Iron pyrites (b) Galena (c) cinnabar (d) bauxite.
24. The process of heating the ore in the absence of air is called
(a) Roasting (b) liquation (c) calcinations (d) smelting
25. Metals such as copper, silver, etc., are refined by
- (a) Zone refining (b) oxidation (c) liquation (d) electrolysis
26. is extracted by Bessemer process.
(a) Gold (b) Aluminum (c) Iron (d) Silver
27. The formula of sodium Meta aluminate is
- (a) NaAlO_3 (b) Na_2AlO_2 (c) NaAlO_2 (d) Na_3AlO_6
28. The unwanted impurities such as mud, stones, sand, etc., which are present in the ore are called
(a) Matrix (b) slag (c) mineral (d) matte
29. The principal ore of aluminum is.....
(a) Bauxite (b) Siderite (c) Azurite (d) Malachite
30. Bauxite ore is purified by.....
(a) Aluminothermic process (b) Baeyer's process
(c) Hall's process (d) Froth floatation process
31. Bronze is an alloy of.....
(a) Zinc (b) Copper (c) Nickel (d) Iron
32. The possible vacancies of copper are.....
(a) 1, 2 (b) 2, 3 (c) 3 (d) 3, 4

33. During extraction of iron the flux used is.....
(a) Silica (b) Calcium silicate (c) Lime stone (d) Coke
34. Which one of the following statement is not correct?
(a) Wrought iron is the purest form of steel.
(b) Pig iron is the impure form of steel.
(c) Hardness of steel decrease with increase in carbon content.
(d) Wrought iron is the impure form of steel
35. The objects like pipes, stoves and hot water radiators are prepared by using.....
(a) Wrought iron (b) cast iron (c) pig iron (d) steel
36. The process of coating zinc over iron sheets is known as.....
(a) Galvanization (b) Tinning (c) Anodizing (d) Alloying
37. Which of the following metals is rendered passive by conc. HNO_3 ?
(a) Fe (b) Cr (c) Al (d) all of 1, 2, 3
38. In the extraction of iron, the charge is a mixture of hematite, coke and limestone. The effective reducing agent for the oxide
(a) Carbon (b) limestone (c) carbon monoxide (d) carbon dioxide
39. Besides iron and C, stainless steel contains
(a) Al and Ni (b) Cr and Ni (c) Cr and Co (d) Co and Ni
40. The chemical Composition of rust is
(a) $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ (b) $\text{FeO}_4 \cdot x\text{H}_2\text{O}$ (c) $\text{FeO} \cdot x\text{H}_2\text{O}$ (d) Fe_3O_4 .
41. The most abundant transition element is
(a) Iron (b) Copper (c) Aluminum (d) Zinc.
42. Brass is an alloy of
(a) Silver (b) Copper (c) tin (d) zinc
43. The metal used for galvanization of iron sheets is
(a) Nickel (b) Zinc (c) Chromium (d) Aluminum.
44. The slag obtained during the extraction of copper pyrites is composed mainly of
(a) Cu_2S (b) FeSiO_3 (c) CuSiO_3 (d) SiO_2 .
45. Galvanization of iron denotes coating with
(a) Al (b) Sn (c) Cd (d) Zn
46. In the extraction of iron, slag is produced which is
(a) CO (b) FeSiO_3 (c) MgSiO_3 (d) CaSiO_3
47. The slow and steady destruction of a metal is known as
(a) Decomposition (b) splitting (c) corrosion (d) galvanization
48. An alloy of iron, chromium and nickel is
(a) invar (b) stainless steel (c) German silver (d) chrome steel
49. is the second most abundant metal in the earth's crust.
(a) Aluminum (b) copper (c) iron (d) silicon
50. have specialized in the metallurgy of iron and manufactured steel.
(a) Indians (b) Americans (c) south Africans (d) British Scientists
51. near Kutabminar of Delhi speaks of the glory of our skill in this art.
(a) Taj Mahal (b) Red Fort (c) Iron gate (d) Ashoka's pillar
52. is the principal ore of iron.

- (a) Haematite (b) Siderite (c) Limonite (d) Iron pyrites
53. Haematite is concentrated byProcess.
(a) Gravity separation (b) froth floatation (c) electromagnetic (d) chemical
54. The concentrated iron ore is strongly heated in a limited supply of air in a
(a) Blast furnace (b) reverberatory furnace
(c) Bessemer converter (d) open hearth furnace
55. Heating of concentrated ore in a limited supply of air is known as
(a) Roasting (b) bessemerisation (c) smelting (d) calcinations
56. Aluminium is unattached by
(a) HCl (b) dil. H₂SO₄ (c) Con. H₂SO₄ (d) HNO₃
57. The alloy used in air craft parts is
(a) Duralumin (b) magnalium (c) Y – alloy (d) alnico
58. An alloy of aluminum and magnesium is called
(a) Duralumin (b) magnalium (c) Y – alloy (d) alnico
59. Alumina is reduced to aluminum by Process.
(a) Bayer's (b) Hall's (c) Bessemer (d) Castner's
60. The molten electrolyte in Hall's process is covered with a layer of
(a) Chalk (b) alumina (c) graphite (d) iron
61. In Hall's process, iron tank is lined with
(a) Alumina (b) graphite (c) cryolite (d) mercury
62. Acts as anode in Hall's process.
(a) Iron (b) Graphite rods (c) Mercury (d) Aluminum
63. Blast furnace is made of
(a) Steel (b) bricks (c) copper (d) stainless steel
64. Blast furnace is lined inside with
(a) Fire resistant steel (b) fire resistant bricks (c) acid resisting bricks (d) flint
65. In the Bayer's process of concentration of bauxite which of the following remains insoluble?
(a) alumina (b) silica (c) alumina and silica (d) ferric oxide
66. The oxides of iron are reduced to iron in Zone.
(a) Fusion (b) slag formation (c) reduction (d) oxidation
67. is used in making silver paints.
(a) Alumina (b) Aluminum powder (c) Silver (d) Silver salts
68. The temperature of the electrolytic bath in Hall's process is
(a) 900 – 950 °C (b) 200 – 250 °C (c) 900 – 950K (d) above 1000 °C
69. The density of aluminum is g/cc.
(a) 1.8 (b) 7.6 (c) 2.7 (d) 1
70. The m.pt of aluminum is
(a) 660 °C (b) 660K (c) 1523 °C (d) 1523 K

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SRI VIDYA MANDIR MATRIC.HR.SEC.SCHOOL – PALACODE**X- chemistry****In-12 metallurgy**

- Which metal is purified by electrolysis?
a) **Gold** b) **iron** c) **copper** d) **aluminium**
- The name of a common ore from which iron can be extracted is called?
a) **haematite** b) **bauxite** c) **charcoal** d) **cryolite**
- In the extraction of aluminium by the electrolysis of molten aluminium oxide ore, oxygen form
a) **Only at the negative electrode** b) **throughout the bulk of molten ore**
b) **Only when the electrodes are close together** d) **only at the +ve electrode**
- Hematite ore contains mainly
a) **Iron oxide and acidic impurities** b) **iron oxide and slag**
b) **Iron carbonate and slag** d) **iron carbonate and calcium oxide**
- During the electrolysis of molten aluminium oxide ore, the ions move
a) **To the -ve electrode because they are +ve charge**
b) **To the +ve electrode because they are +ve charge**
c) **To the -ve electrode because they are -ve charge**
d) **To the +ve electrode because they are -ve charge**
- Why is limestone added to the blast furnace?
a) **To remove oxygen from iron ore** b) **to produce carbon monoxide**
b) **To react with impurities and from slag** d) **to lower the melting point of ore**
- Which metal is added to steel to give it good anti – corrosion properties?
A) **chromium** b) **gold** c) **magnesium** d) **sodium**
- Which metal is less reactive than calcium, but whose oxide is cannot be reduced with carbon.
a) **Zinc** b) **potassium** c) **magnesium** d) **sodium**
- Which element is a metal that cannot be extracted by using carbon?
a) **Na** b) **Cu** c) **Sn** d) **Fe**
- Why is hot air blown into a blast furnace?
a) **To react with impurities in the iron** b) **to melt the iron ore**
b) **Too keep the iron molten** d) **to react with coke and release energy**
- Which reaction produces the molecule that reduces the iron ore to iron?
a) **Iron oxide + carbon monoxide ----> iron + carbondioxide**
b) **Carbon dioxide + Carbon ----> Carbon monoxide**
c) **Calcium carbonate + silicate ----> calcium silicate + carbon dioxide**
d) **Carbon + oxygen -----> carbon dioxide**
- Which one removes the oxygen from the iron ore in the blast furnace?
a) **CO₂** b) **slag** c) **CO** d) **Limestone**
- The conversion of aluminium hydroxide to pure alumina is carried out by ____ (**addition of Al(OH)₃ crystal / thermal decomposition / precipitation**)
- Addition of cryolite in the molten state of alumina _____ (**lower / raises**) melting point of mixture.
- During electrolytic reduction of alumina, the inert electrode is _____ (**reduced / oxidized**) to a natural gas.
- Aluminium o utilized in cooking utensils, since it is _____ (**good conductor of electricity / good conductor of heat / shiny appearance**)