VGR COACHNG CENTER

CLASS X11

CHEMISTRY-LESSON 1,2&6

MARK-70 **TIME-2 HrS**

PART-A ANSWER ALL QUESTION

1. **Flux is a substance which is used to convert**

a) Mineral into silicate **b) Infusible impurities to soluble impurities**

c) Soluble impurities to infusible impurities **d) All of these**

2. **Cupellation is a process used for the refining of**

a) Silver **b) Lead** **c) Copper** **d) iron**

3. **Considering Ellingham diagram, which of the following metals can be used to reduce alumina?**

a) Fe b) Cu c) Mg d) Zn

4. **The incorrect statement among the following is**

a) Nickel is refined by Mond's process

b) Titanium is refined by Van Arkel's process

c) Zinc blende is concentrated by froth floatation

d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution

5. **Match items in column - I with the items of column – II and assign the correct code.**

	Column-I		Column-II
A	**Cyanide process**	**(i)**	**Ultrapure Ge**
B	**Froth floatation process**	**(ii)**	**Dressing of ZnS**
C	**Electrolytic reduction**	**(iii)**	**Extraction of Al**
D	**Zone refining**	**(iv)**	**Extraction of Au**

6. Which of the following metals has the largest abundance in the earth's crust?

a) Aluminium b) calcium c) Magnesium d) sodium

7. Oxidation state of carbon in its hydrides

a) +4 b) -4 c) +3 d) +2

8. The geometry at which carbon atom in diamond are bonded to each other is

a) Tetrahedral b) hexagonal c) Octahedral d) none of these

9. The compound that is used in nuclear reactors as protective shields and control rods is

a) Metal borides b) metal oxides c) Metal carbonates d) metal carbide

10. Assertion : monoclinic sulphur is an example of monoclinic crystal system

Reason: for a monoclinic system, a≠b≠c and __ _= = _ 90900 0 ,

a) Both assertion and reason are true and reason is the correct explanation of assertion.

b) Both assertion and reason are true but reason is not the correct explanation of assertion.

c) Assertion is true but reason is false.

d) Both assertion and reason are false

11. Graphite and diamond are

a) Covalent and molecular crystals b) ionic and covalent crystals

c) both covalent crystals d) both molecular crystals

12. The vacant space in bcc lattice unit cell is

a) 48% b) 23% c) 32% d) 26%

13. The crystal with a metal deficiency defect is

a) NaCl b) FeO c) ZnO d) KCl

14. Potassium has a bcc structure with nearest neighbor distance 4.52 A0 . its atomic weight is 39. its density will be

a) 915 kg m-3 b) 2142 kg m-3 c) 452 kg m-3 d) 390 kg m-3

15. **The cation leaves its normal position in the crystal and moves to some interstitial position, the defect in the crystal is known as**

a) Schottky defect b) F center c) Frenkel defect d) non-stoichiometric defect

PART B - TWO MARK -ANY 7[Q.NO 17 IS COMPULSORY]

16. **Why ionic crystals are hard and brittle?**
17. **Aluminium crystallizes in a cubic close packed structure. Its metallic radius is 125pm. calculate the edge length of unit cell**
18. **What is the contribution of an atom per unit cell if the atom is: (a) At the corner of the cube. (b) On the face of the cube. (c) In the centre of the cube.**
19. **What is the difference between minerals and ores?**
20. **Give the limitations of Ellingham diagram**
21. **What type of π–bonds are formed by heavier elements in p-block?**
22. **The elements B, Al, Ca, In and Tl are placed in the same group of the periodic table. Give reason.**
23. **Why is CO considered poisonous ?**
24. **Why are halogens strong oxidising agents?**
25. **Give the uses of silicones.**

PART-C-3 MARK QUESTION [ANY 7]

26. **Write a note on Fisher tropsch synthesis**
27. **Write a note on zeolites**
28. **A double salt which contains fourth period alkali metal (A) on heating at 500K gives (B). aqueous solution of (B) gives white precipitate with $BaCl_2$ and gives a red colour compound with alizarin. Identify A and B.**
29. **Describe a method for refining nickel.**
30. **Describe the role of the following in the process mentioned.**
    - **(i) Silica in the extraction of copper.**
    - **(ii) Cryolite in the extraction of aluminium.**
    - **(iii) Iodine in the refining of Zirconium**
31. **What is meant by leaching one?Explain any one**

32. Distinguish tetrahedral and octahedral voids

33. An element has bcc structure with a cell edge of 288 pm. the density of the element is 7.2 gcm-3. how many atoms are present in 208g of the element

34. Give any three characteristics of ionic crystals.

35. classify the following solids

a. P4 b. Brass c. diamond d. NaCl e. Iodine

PART-D

36. Discuss the general characteristics of Group 13 elements with reference to their electronic configuration, oxidation state, atomic size, ionisation enthalpy and electronegativity (OR)

a. Give the structure of CO and CO2.
b. Give the uses of silicones.
c.AlCl3 behaves like a lewis acid. Substantiate this statement

37. a. Describe the structure of diborane
b. How will you identify borate radical?
(OR)
a.What is catenation ? describe briefly the catenation property of carbon
b.Why carbon differ from other elements in same group

38. a. Write a short note on electrochemical principles of metallurgy
b. Give the uses of zinc
(OR)
a. Which of the following is true with respect to Ellingham diagram?

a) Free energy changes follow a straight line. Deviation occurs when there is a phase change.

b) The graph for the formation of CO2 is a straight line almost parallel to free energy axis.

c) Negative slope of CO shows that it becomes more stable with increase in temperature.

d) Positive slope of metal oxides shows that their stabilities decrease with increase in temperature.

b.Which type of ores can be concentrated by froth floatation method? Give two examples for such ores

39. A,Give the basic requirement for vapour phase refining
b. Using the elingam diagram

(A) Predict the conditions under which

(i) Aluminium might be expected to reduce magnesia.

(ii) Magnesium could reduce alumina.

(B) Carbon monoxide is more effective reducing agent than carbon below 983K but, above this temperature, the reverse is true –Explain.

(OR)

A.Hall-Herold process

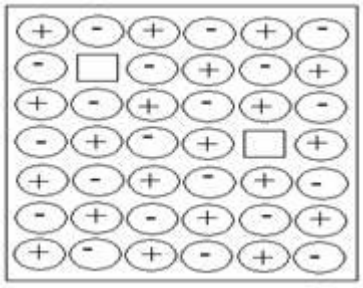
B. Define calcinations

40. A)Identify the defect in figure below :

(b) How does it affect the density of crystal?

(c) Give an example of crystal where this defect can be found.

(d) What is its effect on electrical neutrality of crystal?



B)A compound formed by A & B crystallizes in the cubic structure where 'A' are at the corners of the cube and B are at the face centre. What is the formula of the compound?

(OR)

a. Differentiate crystalline solids and amorphous solids

b. Calculate the percentage efficiency of packing in case of body centered cubic crystal.

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