

HIGHER SECONDARY EXAMINATION

CHEMISTRY

TIME: 2HRS 15 MIN.

Max .Marks: 60

1. (a) In a mixed oxide oxygen crystallizes in ccp structure and all the octahedral holes are occupied by X and half of the tetrahedral voids are occupied by Y. Find the formula of the compound.

(b) What happens when NaCl is heated in an atmosphere of sodium vapour? Justify your Answer

2. (a) Some solutions deviate from ideal behavior. Give a mixture showing negative deviation? Explain the reason?

(b) Molecular weight determination by colligative property measurements shows abnormalities complete the following

Compound	Observed molecular mass	Actual molecular mass
KCl	A	-
Glucose	B	-
Benzoic acid	C	-
Urea	D	-

3. (a) Calculate the EMF of the following cell,



(b) $\text{H}_2\text{-O}_2$ fuel cells are used in spacecrafts

1. What are fuel cells?

2. Give the anode and cathode reactions of $\text{H}_2\text{-O}_2$ fuel cells (2)

4. (a) 1. Rate of a reaction varies with temperature, What happens to the rate of reaction if the temperature increases by 10°C (1)
2 Give a relation that explains the variation of rate constant with temperature (1)
- (b) Differentiate between order and molecularity (1)
5. A catalyst is a substance which alters the speed of a chemical reaction without itself undergoing any change
- (a) Explain the mechanism of heterogeneous catalysis (2)
- (b) Explain the following terms
1. Peptisation
 2. Electro phoresis
6. (a) One stage in extraction of copper from copper pyrites is the formation of Copper matte. What is the composition of that material? (1)
(b) Describe how pure $\text{Al}(\text{OH})_3$ can be prepared from bauxite (2)
7. (a) Arrange the following in the increasing order of acid strength:-
 $\text{HF}, \text{HCl}, \text{HBr}, \text{HI}$ (1)
(b) N_2 does not form penta halides. Why? (1)
(c) The number of electrons in the valence shell decides the oxidation state of an element. What are the possible oxidation states of Pb (atomic no. of Pb=82) which is more stable. Why? (3)
8. (a) Calculate the spin only magnetic moment of $\text{Mn}^{2+}_{(\text{aq})}$ ion ($Z=27$) (2)
(b) How can u prepare KMnO_4 from pyrolusite ore? (2)

12. (a) Write the IUPAC name of $\text{CH}_3\text{-CH=CH-CHO}$ (1)

(b) Explain the following named reactions

(i) Cannizzaro reaction

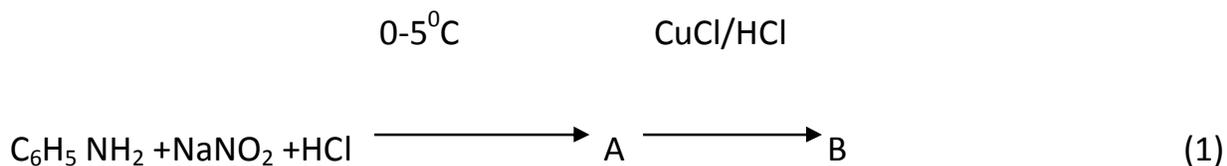
(ii) H.V.2 reaction (2)

(c) Arrange the following compounds in the increasing order of acid strength and give reason.

CH_3COOH , CCl_3COOH , CH_2ClCOOH , CHCl_2COOH (2)

13. (a) Give one chemical test to distinguish between methylamine, dimethylamine and trimethylamine (2)

(b) Give the structures of A and B in the following reaction



14. (a) What are the hydrolysis products of sucrose and lactose? (2)

(b) Identify the vitamin which is responsible for the coagulation of blood. (1)

15. Match the following:-

A	B	C
Nylon 6, 6	Condensation	Non stick coating
Polytetrafluoroethene	Addition	Ziegler Natta catalyst
High density polyethene	$\text{CF}_2=\text{CF}_2$	fibres

(3)

16. (a) Why should not medicines be taken without consulting doctors? (1)

(b) Differentiate between narrow spectrum and broad spectrum antibiotics

with examples.

(2)

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