

# BELPAHAR ENGLISH MEDIUM SCHOOL

## Pre-Final Examination- 2008

CLASS – X

SUB – CHEMISTRY

FM :80

TIME : 1 1/2 hours

*Answers to this Paper must be written on the paper provided separately.*

*You will not be allowed to write during the first 15 minutes.*

*This time is to be spent in reading the Question Paper.*

*The time given at the head of this paper is the time allowed for writing the answers.*

*Section I is compulsory. Attempt any four questions from Section II.*

*The intended marks for questions or parts of questions are given in brackets [ ].*

### SECTION I (40 Marks)

*Attempt all questions from this Section*

#### Question 1 (a)

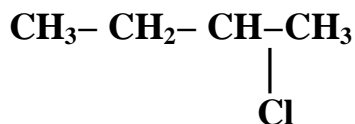
[5\*1]

- (i) A yellow non-metal formed when hydrogen sulphide gas is passed through conc. nitric acid
- (ii) A metallic nitrate which decrepitates on heating
- (iii) Drying agent for ammonia
- (iv) The compounds having same molecular formula but different structural Formula
- (v) The flame used for welding and cutting metals

#### Question 1 (b)

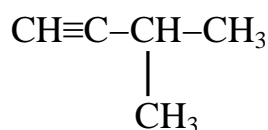
[5\*1]

- i. A non-metal, conducts electricity in its solid state
- ii. An alloy made by mixing roughly 60% copper with 40% zinc
- iii. A salt insoluble in dilute HCl but soluble in aqueous NH<sub>3</sub>
- iv. This salt produces nitrous oxide (laughing gas) on heating along with water. The salt is green in colour when heated produces a gas which turns limewater milky and the salt turns black
- v. Name it

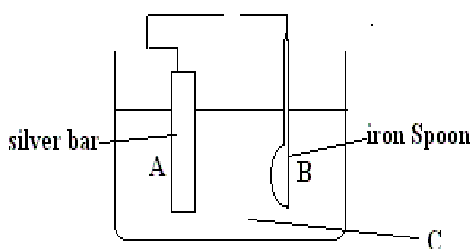


**Question 1 (c)****[5\*1]**

- Why  $\text{HNO}_3$  leaves a yellow colour when left standing in an ordinary glass bottle?
- Write balanced equation for action of heating nitrogen monoxide and oxygen
- Give name and formula of the brown ring compound in ring test for nitrates
- What type of bonding is in the molecule of  $\text{F}_2$ ?
- Write IUPAC names for the following

**Question 1 (d)****[5\*1]**

The diagram shows the apparatus for silver plating of iron spoon. Answer the followings:



- Why the voltmeter blackened from the outside?
- Write down the probable molecular formula of C
- Name all the ions present there.
- State the ionic reactions taking place at cathode and anode
- Name the series represented by  $\text{C}_n\text{H}_{2n-1}$  and  $\text{C}_n\text{H}_{2n+1}\text{OH}$

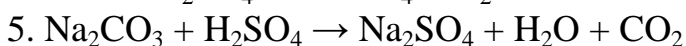
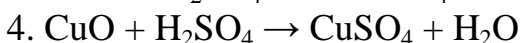
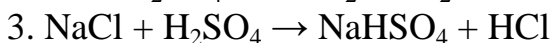
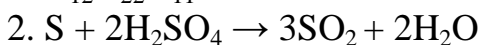
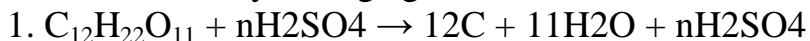
**Question 1 (e)****[2+3]**

- Give equations for the action of heat on: (i)  $\text{NH}_4\text{Cl}$  (ii)  $\text{NH}_4\text{NO}_3$ . State whether each reaction is an example of thermal decomposition or thermal dissociation.
- Name the reagents and give equations for each of the following conversions:
  - an alkene to alkane
  - ethyl chloride to ethyl alcohol
  - ethyl alcohol to ethane

**Question 1 (f)****[1+2+2]****(i)** Give the reason why chlorine is not used to bleach silk**(ii)** Some properties of Sulphuric acid are listed below. Choose the property A, B, C or D,

which is responsible for the reactions (1) to (5). Some properties may be repeated:

A. Acid; B. Dehydrating agent; C. Non-volatile acid; D. Oxidizing agent. E

**(iii)** HCl, HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> are the formulae of three compounds. Which of these compounds has the highest boiling point and which has the lowest.**Question 1 (g)****[5\*1]**

Complete the following table

electrolyte	Cathode	Anode	Product at cathode and relevant	Product at Anode and relevant
CuSO <sub>4</sub> solution	copper	copper		
CuSO <sub>4</sub> solution	platinum	platinum		
CuSO <sub>4</sub> solution	iron	iron		
AgNO <sub>3</sub> solution	graphite	graphite		
AgNO <sub>3</sub> solution	silver	silver		

**Question 1 (h)**Electronic configurations of three elements are as follows: **[1+3+1]**

Elements with Electronic configuration

A (2, 8, 18, 7)    B (2, 8, 8, 3)    C (2, 8, 6)

**(i).** Write down electron-dot-diagram of “A” molecule.**(ii).** Write down the formula of the compounds formed by the Combination of “A” and “B”, “B” and “C”, “C” and “A”. State whether they are Ionic or covalent compounds?**(iii).** Which of these three is a Good conductor of electricity; identify the metal giving its periodic position?

**SECTION II (40 marks)**  
*Answer any four questions*

**Question 2**

**[3+3+4]**

(a) Write one equation in each case to show the action of sulphur dioxide as :  
i. A reducing agent;  
ii. An oxidizing agent;  
iii. An acid anhydride

(b) An inorganic compound has the following compositions: Mg=9.76%, S=13.01%, O=26.01%, H<sub>2</sub>O=51.22%. Find out the simplest formula of the compound.

(b) Write the equations for the following laboratory preparations:-

- (i) Ethane from Sodium propionate.
- (ii) Ethene from Iodoethane.
- (iii) Ethyne from Calcium carbide.
- (iv) Methanol from Iodomethane

**Question 3**

**[5+2+3]**

a)  $\text{Pb}_3\text{O}_4 + 8\text{HCl} = 3\text{PbCl}_2 + 4\text{H}_2\text{O} + \text{Cl}_2$

1.12 dm<sup>3</sup> of Cl<sub>2</sub> was evolved according to the above reaction. Then calculate

- (i) No of moles of Cl<sub>2</sub> gas, HCl and H<sub>2</sub>O
  - (ii) Weight of red lead. and HCl (assuming 36% purity of the acid)
- (b)

Ethane. Ethene. Ethanoic acid. Ethyne. Ethanol

From the box given above, name:-

- (i) The compound with -OH as the part of its structure.
- (ii) The compound with -COOH as the part of its structure.
- (iii) Homologue of Homologous series with general formula C<sub>n</sub>H<sub>2n</sub>.
- (iv) An unsaturated hydrocarbon can react with ammoniacal copper acetylde

c) From the gases ammonia, hydrogen chloride, hydrogen sulphide, sulphur dioxide –Select the following

- i. This gas can be oxidized to sulphur.
- ii. This gas decolourises potassium permanganate solution.

iii. This gas can be obtained by the reaction between copper and concentrated sulphuric acid.

**Question 4**

**[5\*2]**

(a) Calculate the no of moles and corresponding volume at S.T.P of 0.233 gms of nitrogen di oxide

(b) Zinc is more reactive metal as compared to iron yet it used for protecting iron from rusting, why?

(c) Aluminium is a highly electropositive metal, yet it hardly gets oxidized in moist air. Explain.

(d) Name two raw materials from which ethyl alcohol is manufactured industrially. Write the equations.

(e) Write the name of the products formed by oxidation of ethyl alcohol. Name the following



**Question 5 Write balanced chemical equations and mention one significant**

**observation when (any five)**

**[5\*2]**

- i. Dilute sulphuric acid reacts with iron (II) sulphide
- ii. Ethyne is passed through ammoniacal cuprous chloride
- iii. Dilute hydrochloric acid reacts with sodium thiosulphate solution
- iv. Ethene is passed through bromine solution in carbon tetrachloride
- v. Excess chlorine is passed over ammonia
- vi. Potassium permanganate is treated with concentrated hydrochloric acid

**Question 6**

**[2+4+4]**

(a)

1. Write a balanced equation for the complete combustion of ethane.
2. Name a solid which can be used instead of concentrated sulphuric acid to prepare ethylene by the dehydration of ethanol.
3. Name a reagent which can be used to distinguish between ethane and ethene.
4. Ethylene forms an addition product with chlorine. Name the reaction (type of the reaction) and give the formula of the product.

(b) Complete the followings:

Allloy	Composition	Property
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Fe 97%

Ni 2%

C 1%

Monel metal

Al 95%

Mg 5%

duralumin

(c) Give ONE suitable example of each of the followings

(i) A metal which can not displace hydrogen from HCl solution

(ii) A polar covalent neutral compound

(iii) A metal other than mercury which is in liquid state at 25°C

(iv) An oxide, which forms salts when it reacts with both acids & alkalis

### Question 7

[2+4+4]

(a) Write whether the following salts are soluble or insoluble in nature

1. Lead nitrite
2. Lead carbonate
3. Copper carbonate
4. Potassium nitrate

(b) Write down the names of the salts that are formed by:

1. Double decomposition
2. Reaction of acid oxide and alkali
3. Displacement reaction
4. Insoluble metal oxide and acid

(c) How will you prepare the followings? Give the equations.

1. Lead chloride from lead nitrate
2. Iron (II) sulphate crystals from iron