

Version No.			

ROLL NUMBER						



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1	1	1	1
2	2	2	2
3	3	3	3
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5	5	5	5
6	6	6	6
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3	3	3	3	3	3	3
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6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
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Answer Sheet No. \_\_\_\_\_

Sign. of Candidate \_\_\_\_\_

Sign. of Invigilator \_\_\_\_\_

**CHEMISTRY SSC-II**  
**SECTION – A (Marks 12)**  
**Time allowed: 20 Minutes**

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

**Q.1 Fill the relevant bubble for each part. Each part carries one mark.**

- (1) Which one of the following compounds is formed by the reaction of Aluminium Hydroxide  $\text{Al}(\text{OH})_3$  with Sulphuric Acid ( $\text{H}_2\text{SO}_4$ )?
 

A. $\text{Al}(\text{SO}_4)_3$	B. $\text{Al}_2\text{CO}_3$
C. $\text{Al}_2(\text{SO}_4)_3$	D. $\text{AlCl}_3$
  
- (2) Marble Buildings are disintegrated by acid rain because of the reaction of acid with:
 

A. Calcium Sulphate	B. Calcium Nitrate
C. Calcium Carbonate	D. Calcium Oxalate
  
- (3) Dipeptide is formed by joining of two molecules of:
 

A. Amino acids	B. Alcohols
C. Carboxylic acids	D. Amines
  
- (4) Two products obtained from the carbonating tower during the Solvay Process are:
 

A. $\text{NH}_4\text{Cl}$ and $\text{CO}_2$	B. $\text{NH}_4\text{HCO}_2$ and $\text{NH}_4\text{Cl}$
C. $\text{NaHCO}_3$ and $\text{NH}_4\text{Cl}$	D. $\text{NaHCO}_3$ and $\text{NH}_3$
  
- (5) The end product of the reaction of acetylene with concentrated alkaline  $\text{KMnO}_4$  is oxalic acid. In this reaction acetylene undergoes:
 

A. Reduction	B. Oxidation
C. Substitution	D. Rearrangement
  
- (6) One mole of an unsaturated hydrocarbon reacts with one mole of hydrogen to form a saturated compound. Predict the formula of unsaturated compound.
 

A. $\text{C}_3\text{H}_4$	B. $\text{C}_6\text{H}_{12}$
C. $\text{C}_4\text{H}_{10}$	D. $\text{C}_7\text{H}_{16}$

- (7)  $F^-$  is a base, because it:
- A. Contains OH group
  - B. Ionizes in water to give  $OH^-$  ions
  - C. Can accept an electron pair
  - D. Can accept proton
- (8) Which one of the following compounds is an aldehyde?
- A.  $CH_3 - CH_2 - OH$
  - B.  $CH_3 - COOH$
  - C.  $CH_3 - CHO$
  - D.  $CH_3 - COCH_3$
- (9) The pH of  $10^{-3}M$  aqueous solution of NaOH is:
- A. 3
  - B. 11
  - C. 2
  - D. 9
- (10) Which one of the following pollutant is **NOT** produced by the burning of fossil fuel?
- A. CO
  - B.  $NO_x$
  - C.  $CFC_s$
  - D.  $SO_x$
- (11) For a reversible reaction given below the unit of Kc is:
- $$2SO_2 + O_2 \rightleftharpoons 2SO_3$$
- A.  $mol^{-1} dm^3$
  - B.  $mol^{-1} dm^{-3}$
  - C.  $mol.dm^{-3}$
  - D.  $mol.dm^3$
- (12) The composition of matte produced during the metallurgy of copper is:
- A.  $FeSiO_3$
  - B. FeS &  $Cu_2S$
  - C.  $Cu_2O$  & FeS
  - D.  $Cu_2O$  &  $Cu_2S$
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Federal Board SSC-II Examination  
Chemistry Model Question Paper  
(Curriculum 2006)

Time allowed: 2.40 hours

Total Marks: 53

Note: Answer all parts from Section 'B' and all questions from Section 'C' on the **E-sheet**.  
Write your answers on the allotted/given spaces.

**SECTION – B (Marks 33)**

**Q.2** Attempt all parts from the following. All parts carry equal marks. (11 × 3 = 33)

i. Classify the following substances as Lewis acids or Lewis bases. (1+1+1)

a.  $\text{AlBr}_3$       b.  $\text{CH}_3\text{-CH}_2\text{-OH}$       c.  $\text{CN}^-$

**OR**

Write down balanced chemical equations showing the formation of salt: (1.5+1.5)

a. reaction of HCl acid with Al metal  
b. reaction of HCl acid with calcium carbonate

ii. Write the name and formulas of the three Nitrogen containing fertilizers. (1+1+1)

iii. What is slaked lime? How is it produced during by Solvay process? (1+2)

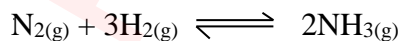
**OR**

Define the following with examples: (1+1+1)

a. Lipids    b. Fats    c. Oils

iv. Describe ion exchange method for removal of hardness of water. (3)

v. For the given reversible reaction equilibrium concentration is: (1.5+1.5)



$$\text{N}_2 = 0.602 \text{ mol/dm}^{-3}$$

$$\text{H}_2 = 0.420 \text{ mol/dm}^{-3} \text{ and}$$

$$\text{NH}_3 = 0.113 \text{ mol/dm}^{-3}.$$

Calculate the value of  $K_c$  and determine  $K_c$  unit.

vi. How has Le-Chatlier's principle made it possible to get maximum amount of product from Habers process? Write its three conditions. (1+1+1)

**OR**

Concentration of an aquas solution of potassium hydroxide  $1.0 \times 10^{-3} \text{ mol/dm}^3$ .

What is its pH? Is this solution acidic, basic or neutral? (1+1+1)

vii. Write the structural formulas of the following: (1+1+1)

a. n-Heptane      b. Methanal      c. Methanoic acid

- viii. Differentiate between homocyclic and heterocyclic compound with the help of structural formula. (1.5+1.5)
- ix. Write two methods of the preparation of propane. Give chemical equations with conditions. (1.5+1.5)
- x. How will you differentiate between Ethane and Ethene using a chemical reaction? (1+2)

**OR**

Identify A and B in the following chemical reaction: (1.5+1.5)

$$\text{CH}_3 - \text{C} \equiv \text{CH} + \text{Cl}_2 \xrightarrow{\text{CCl}_4} \text{A}$$

$$\text{A} + \text{Cl}_2 \xrightarrow{\text{CCl}_4} \text{B}$$

- xi. Discuss three ways by which global warming can be decreased? (1+1+1)

**OR**

Write three disadvantages of acid rain. (1+1+1)

### SECTION – C (Marks 20)

**Note:** Attempt all questions. Marks of each question are given within brackets.

**Q.3** State law of mass action. Derive Kc expression for the following reaction: (2+4)

$$4\text{HCl}(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{Cl}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g})$$

**OR**

Explain Lowry-Bronsted concept of acid and base along with two examples of each. (1.5+1.5+1.5+1.5)

Identify Lowry – Bronsted acids and bases in the following reactions. Justify your answer. (2+1+1+1+1)

- (i)  $\text{HCO}_3^- + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{CO}_3^{2-}(\text{aq}) + \text{H}_3\text{O}^+(\text{aq})$
- (ii)  $\text{NH}_3(\text{g}) + \text{HNO}_3 \rightleftharpoons \text{NH}_4\text{NO}_3$
- (iii)  $\text{F}^- + \text{BF}_3 \rightleftharpoons \text{BF}_4^-$
- (iv)  $\text{CH}_3\text{COOH} + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}_3\text{O}^+(\text{aq})$

**Q.4** What is hard water? Explain the two methods for removing temporary hardness of water. (2+2+2)

**OR**

What is nucleic Acid? Describe structure and function of DNA. (1+2.5+2.5)

**Q.5** Write importance of functional group? Identify the functional group in the following organic compound: (2+1+1)

- (i)  $\text{CH}_3\text{COCH}_3$       (ii)  $\text{CH}_3\text{COOH}$

**OR**

How will you convert propene into propyne? Name the products formed in each step. (1+1+1+2)

**Q.6** Enlist four fractions obtained by fractional distillation of petroleum. (1+1+1+1)