

Version No.			

ROLL NUMBER						



0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
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9	9	9	9

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1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
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 (2nd Set)

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) The raw material which is used for the production of Na_2CO_3 is:
- A. $\text{NH}_3, \text{CO}_2, \text{Ca}(\text{OH})_2$ B. Lime stone, NH_3 , Brine
- C. $\text{NH}_3, \text{CO}_2, \text{H}_2\text{O}$ D. NH_3 , Brine, $\text{Ca}(\text{OH})_2$
- (2) Water can be decomposed with the help of electrolysis. Identify the hydrogen-oxygen ratio by value in water:
- A. 1:1 B. 2:2
- C. 2:1 D. 1:2
- (3) The colour of silk clothes fades away due to SO_2 . Identify the source of SO_2 from the following:
- A. Aerosol sprays
- B. Industries using fossil fuels
- C. Refrigerants
- D. Decaying of dead plant material
- (4) Phenolphthalein is an indicator which is used in titration. Predict the color in base.
- A. Red B. Yellow
- C. Colorless D. Pink
- (5) DNA is the nucleic acid responsible for heredity characters. The following components are present in DNA **EXCEPT**:
- A. Nitrogenous base B. Phosphate unit
- C. Ribose sugar D. Deoxy ribose sugar
- O
||
- (6) Identify the class of compound to which $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$ belongs to:
- A. Aldehydes B. Ethers
- C. Esters D. Ketones

- (7) Identify the process that produces alkane from Alkene:

- | | | | | | |
|----|---------------|-----------------------|----|-----------------|-----------------------|
| A. | hydration | <input type="radio"/> | B. | dehydration | <input type="radio"/> |
| C. | hydrogenation | <input type="radio"/> | D. | Dehydrogenation | <input type="radio"/> |
- (8) Predict the property that organic compounds have
- A. Low melting and low boiling points
 - B. High melting and low boiling points
 - C. Low melting and high boiling points
 - D. High melting and low boiling points
- (9) Propose which one of the following gives addition reaction:
- | | | | |
|----|---------|----|---------|
| A. | Methane | B. | Ethane |
| C. | Propyne | D. | Propane |
- (10) Predict the rate of forward reaction in the beginning of a reversible reaction:
- | | | | |
|----|----------|----|------------|
| A. | Moderate | B. | Negligible |
| C. | Slow | D. | Very fast |
- (11) Interpret which statement is true about equilibrium state:
- | | | |
|----|--|-----------------------|
| A. | Forward reaction stops | <input type="radio"/> |
| B. | Reverse reaction stops | <input type="radio"/> |
| C. | Both reactions stop | <input type="radio"/> |
| D. | Both reactions continue simultaneously | <input type="radio"/> |
- (12) Identify, which one of the following is used for the reduction of Alkyl Halides?
- | | | | | | |
|----|--------|-----------------------|----|--------|-----------------------|
| A. | Mg/HCl | <input type="radio"/> | B. | Cu/HCl | <input type="radio"/> |
| C. | Na/HCl | <input type="radio"/> | D. | Zn/HCl | <input type="radio"/> |
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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 any eleven parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 33)

Q.2 Attempt any **ELEVEN** parts from the following. All parts carry equal marks.

(11 × 3 = 33)

- i. Differentiate between reversible and irreversible reactions with the help of an example.
- ii. The reaction between PCl_3 and Cl_2 produces PCl_5 gas. Derive Kc unit for this reaction with the help of balanced chemical equation.
- iii. The process of separating a metal from its ore is called metallurgy. Enlist the name of any three important metallurgical operations.
- iv. What is a neutral salt? Describe its formation with the help of a valid chemical equation.
- v. Show the structures of Ester and Ether functional groups.
- vi. List three applications of pH in daily life.
- vii. Identify X and Y by the chemical equation given below
$$\text{CH}_3\text{-CH}_2\text{-CH=CH-CH}_3 + \text{Br}_2 \longrightarrow \text{X}$$
$$\text{X} + 2\text{KOH} \xrightarrow{\text{Alcoholic}} \text{Y}$$
- viii. Demonstrate Lowry-Bronsted concept of acids and bases with the help of chemical equation between CH_3COOH and H_2O .
- ix. Demonstrate oxidation of alkynes with KMnO_4 . Write complete reactions.
- x. Define fractional distillation. Give names of any three fractions of petroleum.
- xi. Proteins have peptide linkages (C – N). Show the formation of tripeptide.
- xii. Nucleic acids are found in every living cell and are vital components of all life. Differentiate between DNA and RNA by structures.
- xiii. Global warming is due to a disturbance in the natural balance of the concentration of greenhouse gases. Discuss three effects of global warming.
- xiv. Nitric oxide (NO) and nitrogen dioxide (NO_2) cause air pollution. Enlist three effects of these oxides.
- xv. Hard water hampers cleansing action of soap. Identify the substances that causes hardness in water.

SECTION – C (Marks 20)

Note: Attempt any **TWO** questions. All questions carry equal marks. (2 × 10 = 20)

- Q.3**
- A student collected two samples A and B of hard water from different areas of Rawalpindi. Sample A on boiling gives white precipitate while sample B does not give white precipitate. Identify A and B by chemical reactions. (04)
 - H_3PO_4 donates three hydrogen ions. Reaction of KOH with H_3PO_4 gives three salts. KH_2PO_4 , K_2HPO_4 and K_3HPO_4 . Identify the nature of each salt and write reaction for the formation of each. (06)
- Q.4**
- Propose the steps involved in the extraction of Copper metal by reactions. (05)
 - Write down five properties of organic compounds. (05)
- Q.5**
- Enlist the diseases caused by the deficiency of vitamin A and D. (04)
 - Enlist the names of layers of atmosphere and explain two layers which are nearest to the Earth. (06)

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CHEMISTRY SSC-II (2nd Set)

Student Learning Outcomes Alignment Chart

SECTION – A

Q.1

- (1) Make a list of raw materials for solvay process
- (2) Describe composition and properties of water.
- (3) Describe sources and effects of air pollution.
- (4) Perform acid base titrations and related calculations (skills)
- (5) Describe importance of nucleic acids.
- (6) Differentiate between different organic compounds on the basis of functional groups.
- (7) Write chemical equation to show preparation of alkane from hydrogenation of alkene.
- (8) Identify some general characteristics of organic compound.
- (9) Write chemical equation showing halogenation alkenes.
- (10) Write both the forward and reverse reaction and describe the macroscopic characteristics of each.
- (11) Define chemical equilibrium in terms of reversible reactions.
- (12) Write equation to show preparation of alkanes from reduction of alkyl halides.

SECTION-B

Q.2

- i. Define chemical equilibrium in terms of a reversible reaction.
- ii. Derive an expression for K_c and its units.
- iii. Describe some metallurgical operations.
- iv. Complete and balance a neutralization reaction.
- v. Differentiate between different compounds on the basis of FG.
- vi. Given the Hydrogen ion and Hydroxide ion concentration to classify solution as neutral, acidic, or basic.
- vii. Write chemical equation to show halogenation of alkene. & Write chemical equation to show preparation of alkynes from dehydrohalogenation of 1, 2-dihalide.
- viii. Use the Bronsted Lowry theory to classify substances as acids and bases.
- ix. Write chemical equation showing reaction of $KMnO_4$ with alkenes and alkynes.
- x. Describe briefly the fractional distillation of petroleum.
- xi. Describe the bonding in a protein molecule.
- xii. Describe the importance of nucleic acids.
- xiii. Describe global warming.
- xiv. Describe sources and effects of air pollutants.
- xv. Differentiate among soft temporary and permanent hardness of water.

SECTION-C

- Q.3
- a. Differentiate among soft, temporary and permanent hard water.
 - b. Complete and balance a neutralization reaction.
- Q.4
- a. Describe some metallurgical operations.
 - b. Identify some general characteristics of organic compounds.
- Q.5
- a. Define and explain vitamins and their importance.
 - b. Explain composition of atmosphere.

CHEMISTRY SSC-II (2nd Set)
TABLE OF SPECIFICATION

Topics/Subtopics	Chemical Equilibrium 9	Acid bases and salts 10	Organic chemistry 11	Hydrocarbons 12	Biochemistry 13	Environmental Chemistry I: atmosphere 14	Environmental Chemistry II: Water 15	Chemical Industries 16	Total marks for each Assessment Objective	%age of cognitive level
Knowledge based		2iv(03) 2vi(03)	4b(05)		5a(04)	2xiv(03)		1i(01) 2iii(03) 2x(03)	25	28.7%
Understanding based	1xi(01) 2i(03)	2viii(03) 3b(06)	1vi(01) 1viii(01)	1vii(01) 1xii(01) 2vii(03) 2ix(03)	1v(01) 2xi(03) 2xii(03)	1iii(01) 2xiii(03) 5b(06)	1ii(01) 2xv(03)		44	50.6%
Application based	1x(01) 2ii(03)	1iv(01)	2v(03)	1ix(01)			3a(04)	4a(05)	18	20.7%
Total marks for each Topic/Subtopic	08	16	10	09	11	13	08	12	87	100%

KEY:

1(1)1

Question No (Part No.) Allocated Marks

Note: (i) The policy of FBISE for knowledge based questions, understanding based questions and application based questions is approximately as follows:

- a) 30% knowledge based.
- b) 50% understanding based.
- c) 20% application based.

(ii) The total marks specified for each unit/content in the table of specification is only related to this model question paper.

(iii) The level of difficulty of the paper is approximately as follows:

- a) 40% easy
- b) 40% moderate
- c) 20% difficult