

Version No.			

ROLL NUMBER						

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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
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- (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 B. dehydration
C. hydrogenation D. Dehydrogenation
- (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
B. Reverse reaction stops
C. Both reactions stop
D. Both reactions continue simultaneously
- (12) Identify, which one of the following is used for the reduction of Alkyl Halides?
A. Mg/HCl B. Cu/HCl
C. Na/HCl D. Zn/HCl
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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
$$\begin{array}{l} \text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_3 + \text{Br}_2 \longrightarrow \text{X} \\ \text{X} + 2\text{KOH} \xrightarrow{\text{Alcoholic}} \text{Y} \end{array}$$
- 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:

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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