Version No.			

ROLL NUMBER						

Answer Sheet No._____

Sign. of Candidate _____

Sign. of Invigilator _____

CHEMISTRY SSC–II (3rd 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) Nitrogen and hydrogen were reacted together to make ammonia: $N_2 + 3H_2 \rightleftharpoons 2NH_3$, Kc = 2.86 $mol^{-2}dm^6$. What will be present in the equilibrium mixture?

A. NH_3 only ◯ B. N_2, H_2 and NH_3 ◯

C. N_2 and H_2 only ◯ D. H_2 only ◯

(2) Predict which one of the following salts is used for softening of water?

A. Na_2SO_4 ◯ B. Na_2SiO_3 ◯

C. $Na_2CO_3 \times 10H_2O$ ◯ D. $NaClO_3$ ◯

(3) Identify in which one of the following functional groups, oxygen is attached on both sides with carbon atoms?

A. ketone ◯ B. ether ◯

C. aldehyde ◯ D. carboxylic acid ◯

(4) Predict which one of the following compounds is an aldehyde?

A. $CH_3 – CH_2 – OH$ ◯ B. $CH_3 – COOH$ ◯

C. CH_3CHO ◯ D. CH_3COCH_3 ◯

(5) What is the molecular formula of Butyne?

A. C_4H_6 ◯ B. C_3H_4 ◯

C. C_4H_7 ◯ D. C_4H_8 ◯

(6) Predict which one of the following is also called olefins?

A. Alkanes ◯ B. Alkenes ◯

C. Alkynes ◯ D. Alcohols ◯

(7) Identify which one of the following is a triglyceride?

A. carbohydrates ◯ B. proteins ◯

C. lipids ◯ D. vitamins ◯

(8) What is the building block of lipids?

A.	Fatty acids	◯	B.	Carboxylic acids	◯
C.	Mineral acids	◯	D.	Alcohol	◯

(9) Most of the ultraviolet (UV) radiations coming from the sun are filtered or screened out by the ozone layer. Name the layer of atmosphere which contains maximum amount of ozone.

A.	Troposphere	◯	B.	Thermosphere	◯
C.	Stratosphere	◯	D.	Mesosphere	◯

(10) K_w is known as ionization constant for water. Name the factor on which it depends.

A.	amount of H_2O	◯	B.	temperature	◯
C.	density	◯	D.	volume	◯

(11) Name the petroleum fraction having composition C1 to C4:

A.	Petroleum gas	◯	B.	Petroleum ether	◯
C.	Gasoline	◯	D.	Kerosene oil	◯

(12) What is the important fraction of paraffin wax and asphalt?

A.	Fuel oil	◯	B.	Diesel oil	◯
C.	Kerosene oil	◯	D.	Residual oil	◯

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. $(11 \times 3 = 33)$

i. Show both forward and reverse reactions with the help of suitable examples.

ii. Carbon is the main constituent of hydrocarbons. Why some are called unsaturated hydrocarbon? Briefly describe.

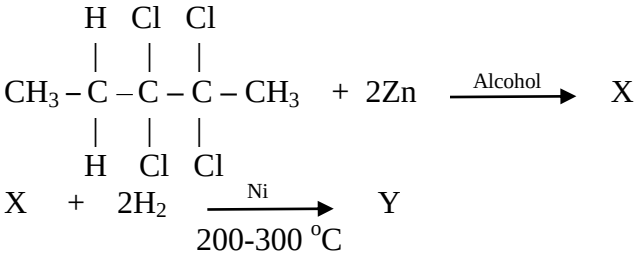
iii. Briefly explain the source, harmful effects and physical properties of oxides of nitrogen.

iv. Draw the structure of different isomers of C_6H_{14}.

v. Barium nitrate Ba $(NO_3)_2$ is used to produce a green color in fire work. It is the product of Barium Hydroxide with HNO_3. Propose its balanced chemical equation.

vi. Illustrate effect of acid rain on marble and metal by chemical reactions.

vii. Identify X and Y by the chemical equation given below:



viii. Differentiate between mono saccharide and disaccharide with at least two examples.

ix. Draw the structures of heterocyclic compounds. (Any three)

x. List down three uses of proteins.

xi. List down three importance of nucleic acid.

xii. Briefly describe major air pollutant.

xiii. Identify three water pollutants.

xiv. List three uses of urea.

xv. Illustrate structural formula of iso pentane, pentene and pentyne.

SECTION – C (Marks 20)

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

Q.3 a. Propose the basic reactions of Solvay process for the manufacturing of washing soda. (6)

b. State and explain necessary conditions for equilibrium. (4)

Q.4 a. Show by chemical reactions that water is amphoteric in nature. (4)

b. Predict chemical equations showing halogenation of ethane, ethene and ethyne. (6)

Q.5 a. Describe the occurrence of water and its importance in environment including industry. (3+3)

b. Prove that $10^{-14}=[H^+][OH^-]$ for the self-ionization of water at 25°C. (4)

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CHEMISTRY SSC-II (3rd Set)
Student Learning Outcomes Alignment Chart

SECTION A

Q.1

(1) Reversible reaction and dynamic Equilibrium define the chemical Equilibrium in term of reversible reactions.
(2) Classify the solution as acidic, basic and neutral use of salt.
(3) Differentiate between different compounds on the basis of their functional group
(4) Identify and recognized a molecule functional group.
(5) Differentiate between different compounds on the basis of their functional group.
(6) Differentiate between saturated and unsaturated hydrocarbon.
(7) Explain the source and uses of carbohydrate protein and Lipids
(8) Describe the bonding in protein molecules.
(9) Explain the composition of atmosphere.
(10) Write the equation for self-ionization of water
(11) Describe the composition of petroleum.
(12) Describe the fractional distillation of petroleum.

SECTION-B

Q.2

i. Write both the forward and the reverse reaction and describe the macroscopic characteristics?
ii. Distinguish between saturated and unsaturated Hydrocarbons.
iii. Describe the sources and effects of air pollutants?
iv. Explain the diversity and magnitude of open chain isomerism.
v. Complete and balance a neutralization reaction.
vi. Describe acid rain and its effects.
vii. Write a chemical equation to show the preparation of alkynes from DE halogenation of 1,2- Dihalides and tetra halides.
viii. Distinguish between mono, di, and trisaccharides.
ix. Classify organic compound into straight chain, branch chain and cyclic compounds.
x. Explain the sources and uses of proteins, carbohydrates and lipids.
xi. Describe the importance of nucleic acids.
xii. Describe major air pollutants.
xiii. Identify water pollutants
xiv. List the uses of urea.
xv. Classify organic compound into straight chain, branch chain and cyclic compounds.

SECTION-C

Q.3 a. Outline the basic reaction of Solvay process.
b. State the necessary conditions for equilibrium and the way that equilibrium can be recognized.

Q.4 a. Use the Bronsted Lowry theory to classify substances as acids bases or as proton donors or Proton acceptors.
b. Write chemical equation to show halogenation of alkane, alkene and alkyne.

Q.5 a. Describe the occurrence of water and its importance in the environment including industries.
b. Write the equation for self-ionization of water.

* * * * *

CHEMISTRY SSC-II (3rd 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)	1(1)(1) 3b(4)			1(5)(1)	1viii(1) 2x(3) 2xi(3)	1(9)(1)	1(10)(1) 5a(6)	2xiv(03) 1xi(01) 1xii(01)	26	29.9%
(Understanding based)		4a(4) 5b(4)	1(3)(1) 1(4)(1) 2ii(3) 2iv(3) 2ix(3)	1(6)(1) 4b(6)	1vii(1) 2viii(3)	2iii(3) 2vi(3) 2xii(3)	1(2)(1) 2xiii(3)		43	49.4%
(Application based)	2i(3)	2v(3)		2vii(3) 2xv(3)				3a(06)	18	20.7%
Total marks for each Topic/Subtopic	08	11	11	14	11	10	11	11	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