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 Answer Sheet No: _____
Signature of Candidate: _____ Signature of Invigilator: _____

Federal Board HSSC-II Examination
Chemistry Model Question Paper
(Curriculum 2006 – NBF)

SECTION – A

Time allowed: 25 minutes

Marks: 17

Note: Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 20 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Encircle the correct option i.e. A / B / C / D. Each part carries one mark.

- i. Which of the following is an aromatic compound?

A. Propanol	B. Cyclohexane
C. Acetone	D. Picric acid
- ii. The simplest molecules of bucky balls contain carbon atom

A. 20	B. 08	C. 60	D. 100
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- iii. Major portion of natural gas is.

A. Ethane	B. Propane
C. Butane	D. Methane
- iv. The ring of benzene molecule contains

A. Six δ bonds only	B. Six π bonds only
C. Three δ bonds three π bonds	D. Six δ bonds three π bonds
- v. Regents required for alkylation of benzene

A. $Cl_2/FeCl_3$	B. $R-CH_2-Cl/AlCl_3$
C. $R-Cl/AlCl_3$	D. HNO_3/H_2SO_4
- vi. Plane polarized light is affected by

A. Identical molecule	B. All Polymers
C. Chiral molecules	D. All diatomic molecules.
- vii. Alcohols will react with $SOCl_2$ to produce

A. Alkane	B. Nitrosyl chloride
C. Alkyl chloride	D. Alkyl nitile
- viii. Which of the following is a two step reaction?

A. SN_2	B. SN_1	C. E_2	D. isomerization
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DO NOT WRITE ANYTHING HERE

- ix. Action of alkyl halide on sodium metal yields
A. Alkanes B. Alcohols C. Alkene D. Phenol
- x. Pick the general formula of ether form following:
A. R-COOR' B. R-OOR' C. R-CO-R D. R-O-R
- xi. Which of the following compounds have no dipole-dipole attraction?
A. C₆H₆ B. C₂H₅OH
C. CH₃CH₂CH₂CH₂OH D. CH₃-O-CH₃
- xii. 2,4,6 Trinitrotoluene is commercially called
A. TNT B. Picric acid
C. Carboic acid D. Fumeric acid
- xiii. The color of iodoform is:
A. White B. Black C. Yellow D. Blue
- xiv. Al powder react with:
A. Steam B. Cold Water
C. Hot Water D. Super heated steam
- xv. Which of the following is strongly basic oxide?
A. Na₂O B. MgO C. SiO₂ D. Al₂O₃
- xvi. Which of the following is not an element of third period?
A. Br B. Na C. Mg D. Cl
- xvii. Sodium burns in air to form
A. Monoxide B. Peroxide C. Oxide D. Superoxide

For Examiner's use only

Q. No.1: Total Marks:

17

Marks Obtained:



Federal Board HSSC-II Examination
Chemistry Model Question Paper
(Curriculum 2006 – NBF)

Time allowed: 2.35 hours

Total Marks: 68

Note: Sections 'B' 'C' and 'D' comprise pages 1-2 and questions therein are to be answered on the separately provided answer book. Answer any seven parts each from section 'B' and section 'C' and any two questions from section 'D'. Use supplementary answer sheet i.e., sheet B if required. Write your answers neatly and legibly.

SECTION – B ($7 \times 3 = 21$)
{From Chapters (13, 14, 21-24)}

- Q.2 Attempt any SEVEN parts. All parts carry equal marks.
- Upon moving left to right in 3rd period, nature of oxides changes from basic to amphoteric to acidic, why?
 - High percentage of CO₂ is responsible for climate changes. Comment.
 - Explain the following terms:
 - Ligand
 - Coordination Sphere
 - Central Metal atom/ion.
 - Ionization Energy of Lead is greater than Tin, although it decreases down the group, why?
 - Discuss the trends in thermal stability of carbonates and nitrates of group I elements.
 - Hexagonal planar geometry, trigonal prismatic geometry and regular octahedral geometry have coordination number 6. Draw their structures. Which structure is acceptable by the compounds having co-ordination number 6 and why?
 - What are conjugated proteins? Describe three examples with their sources.
 - What are the two modes of working enzymes? Describe with structures.
 - How does phenolphthalein change its structure in acidic and basic solutions to change its colour?
 - Describe raw material and manufacturing process of nail polish.

SECTION – C ($7 \times 3 = 21$)
(From Chapters 15-20)

- Q.3 Attempt any SEVEN parts. All parts carry equal marks.
- What is Markownikov's rule? Explain with two examples.
 - Describe the optical isomerism of (+), (-) and (±) Lactic acid with its structure.
 - Benzene gives electrophilic substitution reactions. How does it substitute bromine? Explain your answer with mechanism of the reaction.
 - Describe the dehydration of alcohols in the presence of Al₂O₃ and H₂SO₄ with the various alcohols at different temperature.
 - How would you convert 2-butyne to *cis* and *trans* 2-butenes.
 - Benzene is more stable due to loss of extra energy during its formation, explain this extra stability of benzene with respect to energy level diagram.

- vii. Draw the structures of following compounds:
 - a. N,N-Dimethyl aminobutane
 - b. Carboic acid
 - c. 2,3,5-trimethyl-4-n-propylheptane .
- viii. Differentiate between S_N1 and S_N2 mechanism.
- ix. What do you know about Lucas test? Explain by giving chemical reactions.
- x. What is Iodoform test? How will you distinguish between 2-Pentanone and 3-pentanone by using this test?

SECTION – D ($2 \times 13 = 26$)

Note: Attempt any **TWO** questions. All questions carry equal marks.

From Chapter (15-20)

- Q.4 a. What are Grignard reagents? Give mechanism of reaction of R-Mg-X with ethyl acetate, followed by acid hydrolysis. (07)
- b. Convert (02x3 =6)
- i. phenyl acetylene into acetophenone
 - ii. methyl nitrile into acetic acid
 - iii. ethyl bromide into propanoic acid.

From Chapter (13, 14, 21-24)

- Q.5 a. What is the Principal of NMR spectroscopy? Why do splitting of peaks occur? What information is obtained from the number of peaks and area under peaks in NMR Spectrum? (08)
- b. How does Nitric acid will oxidize V^{2+} to V^{4+} ? Why does Nitric acid not oxidize V^{4+} to V^{5+} ? Explain. (05)

From Chapter (15-20)

- Q.6 a. Why are some groups *ortho* / *para* and *meta* directors? Explain with examples. (06)

From Chapter (13, 14, 21-24)

- b. How does beryllium differ from the members of its own family? (07)