



Sanjay Ghodawat University, Kolhapur

2017-18

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

FY B.Sc.

School of Science

Semester I

CHS 101

Chemistry - I

Max Marks: 100

~~Nov~~ 2017
26 Dec

Re- End Semester Examination (ESE)

Time: 3 Hrs

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Max. Marks: 100

Q.1 Multiple choice questions (each one mark)

10 Marks

CO

i) In the line spectrum of hydrogen, Balmer series of lines observed in _____.

CO1

- a) UV Region
- b) Visible Region
- c) IR Region
- d) Microwave Region

ii) The value of Bohr radius is _____.

CO1

- a) 0.529 \AA
- b) 0.259 \AA
- c) 0.925 \AA
- d) 0.952 \AA

iii) Fajan's rules are applicable to account covalent character of _____.

CO1

- a) Covalent compounds
- b) Ionic compounds
- c) Metallic compounds
- d) Network solid

iv) The formation of ionic solids is favoured if _____.

CO2

- a) Ionisation potential of electropositive atom is low
- b) Electron affinity is high
- c) Lattice energy of resultant ionic compound is high
- d) All of above

v) The bond angle in sp hybridization is _____.

CO2

- a) 180°
- b) 120°
- c) 90°
- d) 75°

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- vi) The bond which is formed by the sharing of electron is called as _____. CO1
- Ionic bond
 - Covalent bond
 - Hydrogen bond
 - Vander Walls forces
- vii) Which of the following is a reducing agent? CO1
- $K_2Cr_2O_7$
 - Sodium amalgam
 - $KMnO_4$
 - H_2SO_4
- viii) Bonding molecular orbital is at _____. CO2
- Higher energy level
 - Lower energy level
 - At the same energy level
 - All of these
- ix) The ratio of number of moles of the substance to the total number of moles of all the substances present in the solution is known as _____. CO1
- Molality
 - Normality
 - Mole fraction
 - Molarity
- x) To determine the normality of a substance _____ is considered. CO1
- Molecular weight
 - Gram Equivalent weight
 - Atomic weight
 - None of these

Q.2. a) Solve any one of the following (Eight mark each)

**20
Marks**

- Explain factors governing the formation of an ionic bond. CO2
- Give the explanation of the Principal, Azimuthal and Magnetic and Spin quantum numbers? CO1

b) Solve the following (Six marks each)

- Define chemical bond. What are the types of bond? CO1
- Discuss Heisenberg's uncertainty principle. CO2

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Q.3 Write short notes on any 4 the following (Five marks each)

**20
Marks** **CO2**

- i) sp^3d hybridization
- ii) p_y - p_y overlap
- iii) Bond order and stability of molecule
- iv) What is the strength in gram per liter of solution of HCl having sp. gr. 1.18 and weight 38 % .
- v) Calculate the normality of a solution which contains 1.2 gm NaOH in 200 ml solution
- vi) de-Broglie hypothesis.

Q.4. Multiple choice questions (each one mark)

**10
Marks** **CO3**

- i) Which of the following is the most stable carbanion?
 - a) Benzyl
 - b) Phenyl
 - c) Ethyl
 - d) Cyclobutyl
- ii) Which of the following is the essential criteria for aromaticity?
 - a) Compound must be planer
 - b) Compound contains sp^3 hybridized carbon atom
 - c) Compound contains ' $4n+2$ ' π electrons
 - d) All of these
- iii) Dhydrohalogenation of alkene is an-----
 - a) Addition electron
 - b) Substitution reaction
 - c) Elimination reaction
 - d) Oxidation reaction
- iv) Anti Markownikoffs addition takes place in the presence of
 - a) O_2

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- b) H_2O_2
c) Light
d) O_3 CO3
- v) Which one of the following is a nucleophile -----
a) OH^-
b) NO_2^+
c) BF_3
d) AlCl_3 CO3
- vi) The free radicals are formed by-----
a) Heterolytic bond fission
b) Homolytic bond fission
c) All of above
d) Dissociation of bond CO3
- vii) The geometry of carbocation is -----
a) Trigonal planner
b) Tetrahedral
c) Linear
d) Octahedral CO4
- viii) As number of Carbon increases in alkanes, the boiling point--
--
a) Increases
b) Decreases
c) Remains constant
d) None of the above CO4
- ix) The general formula of alkane is -----
a) C_nH_{n+2}
b) C_nH_{2n}
c) C_nH_n
d) C_nH_{n-2} CO3
- x) The bond angle between two methyl groups of n-butane in staggered conformation is -----

- a) 60°
- b) 180°
- c) 120°
- d) 0°

Q.5 a) Solve any one of the following (Eight mark each)

20

i) What is resonance? Explain resonance in aniline and benzene.

Marks CO3

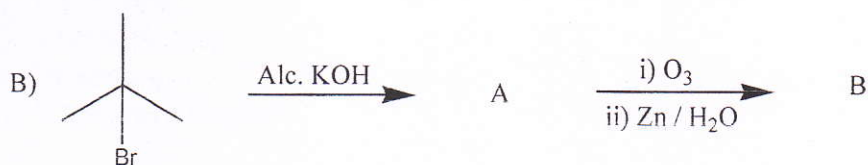
ii) Discuss halogenations reactions of alkanes.

CO4

b) Solve the following (Six marks each)

i) Identify product **A** and **B** (2 marks each)

CO4



ii) Discuss about enantiomers and diastereoisomers

CO3

Q.6 Write short notes on any 4 the following (Five marks each)

20

i) Inductive effect

Marks CO3

ii) Grignard reagent

CO3

iii) Saytzeff Rule of Alkene

CO4

iv) R, S nomenclature with example.

CO4

v) Concept of Aromaticity

CO3

vi) What are alkenes? Give major and minor products when propene reacts with

CO4

a) HBr b) H_2O

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