



Sanjay Ghodawat University, Kolhapur

2017-18

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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 CO
Marks

- 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**

- 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 ' $4n$ ' 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 -----

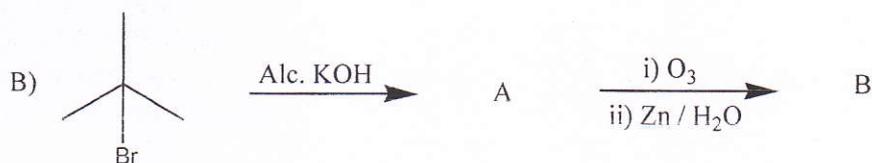
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- a) 60°
- b) 180°
- c) 120°
- d) 0°

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 **CO4**

when propene reacts with

- a) HBr b) H_2O

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