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SUBJECT CODE NO:- Y-2168
FACULTY OF SCIENCE
B.Sc. F.Y (Sem- I) Examination March/April 2017
Chemistry Paper-II (Organic Chemistry)

[Time: 1:30 Hours] **[Max.Marks:50]**

Please check whether you have got the right question paper.

N.B i) Attempt all questions.
ii) Use blue or black pen only.

Q.1 a) How sterio chemical evidence and kinetic evidence help in determining mechanism of organic reactions? 20

b) Explain sequence rule for assigning R & S configuration.

OR

c) Comment on structure of free radical. Explain why tertiary butyl free radical is more stable than isopropyl and ethyl and ethyl radical?

d) Compare inter and intra molecular H- bonding with suitable example.

Q.2 A) i) Write a role on kolbe's reaction. 20
ii) Explain Hydroboration oxidation reaction of alkene.

B) i) Explain why benzene is aromatic?
ii) Explain elimination addition mechanism involved in the formation of meta and Para toluidine from Para chloro toluene.

OR

Write short notes on (any four)

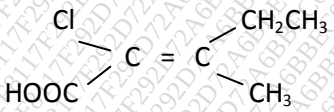
a) Side chain reaction of aryl halide.
b) Nitration of benzene with mechanism.
c) Rearrangement reaction.
d) E- Z system of nomenclature.
e) Dehydration of alcohol
f) Define alkane. Explain its physical properties.

Q.3 Choose the correct alternatives of the following. 10

1) ---------- is an example of trihalide derivative of alkane.
a) Methyl chloride
b) Ethyl chloride
c) Chloroform
d) Carbon tetrachloride

2) Benzene react with acetic anhydride in presence of $AlCl_3$ to form ---------.
a) Acetophenone
b) Benzophenone
c) Phenyl acetic acid
d) Phenyl acetate.

3) Sterio isomers which are not mirror image of each other but nonsuperimposible are called as.
   a) Enantiomers
   b) Tautomers
   c) Metamers
   d) Diasterio isomers
4) Which of the following compound has smallest C –X bond length
   a) CH_3I
   b) CH_3 Br
   c) CH_3 Cl
   d) CH_3 F
5) Electron donating substituent on $\backslash C = C /$, ---------- rate of electrophilic addition reaction.
   a) Decrease
   b) Does not affect
   c) Increases
   d) Increases & decrease.
6) The halogenation of alkane takes place with formation of ----------.
   a) Carbanion
   b) Carbocation
   c) Free radical
   d) None of above.
7) ---------- effect operates via preventing the effective delocalization of II – electrons in a molecule by bulky groups.
   a) Mesomeric
   b) Steric
   c) Inductive
   d) Conjugative.
8) The bond angle in methyl carbocation is ----------.
   a) 109^0
   b) 180^0
   c) 120^0
   d) 60^0
9) Which of the following hydrogen halide reacts faster with alkene
   a) HI
   b) HBr
   c) HCl
   d) HF.

10)  has ---------- nomenclature.

   a) E
   b) Z
   c) R
   d) S

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SUBJECT CODE NO:- Y-2009
FACULTY OF SCIENCE
B.Sc. F.Y (Sem-II) Examination March/April 2017
Chemistry Paper-IV/ (V 2009 Pattern)
(Physical Chemistry)

[Time: 1:30 Hours] **[Max.Marks:50]**

Please check whether you have got the right question paper.

N.B i) Attend all questions.
ii) Illustrate your answer with suitable labeled diagram.

Q.1 Derive kinetic gas equation. 20

OR

Write types of solids. Give the difference between them.

Q.2 Derive rate equation of first order reaction. Write is half life. 20

OR

Write short notes on any four:

a) Calculate the distance between two points lying on the straight line.
   i) (5, -4) and (7,6).
   ii) (3,2) and (9,-4).
b) Using logarithms solve :
   i. 430×30.
   ii. $936 \div 90$.
c) Write the difference between solids and liquids.
d) Explain the structure of liquids.
e) Explain the emulsions. Write its types.
f) What are gels? Write its classification.

Q.3 Multiple choice questions : 10

1. The change of a solid to a liquid is .....
   a) Melting
   b) freezing
   c) Vaporization.
   d) Sublimation.
2. Which represents the largest pressure?
   a) One atm.
   b) Two atm.
   c) One mm of Hg.
   d) One Pascal.
3. If concentration of reactant is increased, the rate of reaction .....
   a) Decreases
   b) Increases.
   c) Both 'a' and 'b'.
   d) None of the above.

4. A reaction involving two different reactants can never be .....
    a) Uni-molecular
    b) First order.
    c) second order.
    d) Bi-molecular.
5. Rate of chemical reaction depends upon .....
    a) Time.
    b) Concentration.
    c) Pressure.
    d) All.
6. Unit of viscosity is .....
    a) Poise.
    b) dynes/cm.
    c) Joule/$m^{2.}$
    d) Joule.
7. Glass is .....
    a) Super cooled liquid
    b) Crystalline.
    c) Liquid Crystal.
    d) Solid Crystal.
8. Solids in liquids are .....
    a) Gels.
    b) Sols.
    c) Emulsions.
    d) All.
9. $\log 240 =$.....
    a) 2.3802
    b) 2.1021
    c) 2.3150
    d) 2.3500.
10. Slope of straight line is .....
    a) $y = mx + c$.
    b) $y = \frac{mx}{c}$.
    c) $y = x + mc$.
    d) $y = mx$.

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SUBJECT CODE NO:- Y-2167
FACULTY OF SCIENCE
B.Sc. F.Y (Sem- I) Examination March/April 2017
Chemistry Paper-I (Inorganic Chemistry)

[Time: 1:30 Hours] **[Max.Marks:50]**

Please check whether you have got the right question paper.

N.B i) Attempt all questions.
ii) All questions carry equal marks.
iii) Illustrate your answer with suitable labeled diagram.

Q.1 a) What are quantum numbers? Explain magnetic and spin quantum number? 20
b) Discuss the trend of atomic and Ionic radii in period and group.
OR
a) What is diagonal relationship? Explain the diagonal relationship of Li and Mg.
b) Explain the trends, in the following properties of VII A or 17 group elements
c) 1] Ionization potential 2] electro negativity.

Q.2 a) State and explain Pauli's exclusion and Aufbau's principle. 20
b) What are inter halogen compound? Explain its types.
OR
Write short notes on any four of the following.
a) Hund's rule of maximum multiplicity.
b) Trends of Ionization potential in the periodic table.
c) Electronic configuration of IA group elements.
d) Hydrides of group 13 elements
e) Diagonal relationship between Boron and silicon.
f) Factor affecting on Electronegativity.

Q.3 Attempt the following 10

1) The total number of electron in a principle energy shell is designated by expression ----.
   a) n
   b) 2n + 1
   c) ns^2
   d) $2n^2$
2) The principle quantum number, n describes.
   a) Shape of orbital
   b) Sub – shell of electron.
   c) Main energy shell of electron.
   d) Spin of electron.
3) Electro negativity is the tendency of atom to ------
   a) Lase electron
   b) Repel electron
   c) Shair electron with other atoms
   d) Attract bonding electrons.

4) Which of the following statement is correct?
   a) Anion is larger in size than parent atom.
   b) Cation is larger in size than parent atom.
   c) Cation is larger in size than anion.
   d) Cation and anion are equal in size.
5) Alkali metals belong to.
   a) S – block
   b) P – block
   c) d – block
   d) F – block
6) The general electronic configuration of elements of group II A can be represented by.
   a) $ns^2 np^6$
   b) $ns^2 np^5$
   c) ns^2
   d) $(n-1)d^{10} ns^2$
7) Which of the following pains show diagonal relationship?
   a) B and Al
   b) Li and Na
   c) C and Si
   d) B and Si.
8) The valanced shell electron structure of an element is $ns^2 np^5$, the element will belong to the group of.
   a) Alkali metals
   b) Inert metals
   c) Noble gases
   d) Halogens
9) Atomic number of K is.
   a) 18
   b) 19
   c) 20
   d) 21.
10) Which of the following hydride is strongest base?
   a) NH_3
   b) PH_3
   c) ASH_3
   d) SbH_3

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SUBJECT CODE NO:- Y-2010
FACULTY OF SCIENCE
B.Sc. F.Y (Sem-II) Examination March/April 2017
Chemistry Paper- V / (VI 2009 Pattern)
Inorganic Chemistry

[Time: 1:30 Hours] **[Max.Marks:50]**

Please check whether you have got the right question paper.

N.B i) Attempt all questions.
ii) All question carry equal marks.
iii) Illustrate your answer with suitable labeled diagram.

Q.1 a) Explain the formation of co-molecule on the basis of molecular orbital theory. 10

OR

b) Discuss the chemistry of Xenon in brief.

Q.2 a) Explain the properties of β *and* γ particles. 10

OR

b)
a) Explain self indicator for redox titration.
b) Discuss oxidizing agent with one example.

Q.3 Discuss in detail internal and external indicator. 10

OR

What is mass budget? How it is related to binding energy.?

Q.4 Write short notes on any two of the following: 10
a. Structure and bonding in BeF_2.
b. Hydrogen bonding.
c. Properties of α-particle.
d. Types of Titrations.

Q.5 Attempt the following : 10
i. Electronic configuration of He is .....
a) $1S^2$
b) $2S^2$
c) $3S^2$
d) $4S^2$.
ii. Bond angle of Methane molecule is .....
a) 109.5°.
b) 107.8°.
c) 105.5°.
d) 100°.
iii. Hydrogen bonding is present in .....
a) HF
b) Nacl
c) MgO
d) KCL.

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iv. The elements of group 18 are .....
    a) Alkali metal
    b) Lanthanides
    c) Halogens
    d) Nobel gas.

v. Bond order of He_2 is .....
    a) Zero
    b) One
    c) Two
    d) Three.

vi. ..... is the best complexing agent.
    a) HCL
    b) NaOH
    c) ETDA
    d) NH_3.

vii. The shape of ClF_3 molecule is .....
    a) T-shape
    b) V-shape
    c) Cup-saucer
    d) see-saw.

viii. Geometry of IF_7 is .....
    a) Tetrahedral
    b) Octahedral
    c) Pentagonal bipyramidal
    d) Trigonal pyramidal.

ix. ..... type of indicator is used in complexometric titration.
    a) Phenolpthalien
    b) EBT
    c) Methyl orange
    d) Starch.

x. Complete the following :
    $_{93}U^{238} + {}_2He^4 \rightarrow ..... + {}_1H^1$.
    a) $_{94}Pu^{240}$
    b) $_{94}Pu^{241}$
    c) $_{94}Pu^{239}$
    d) $_{94}Pu^{242}$.