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CHEMISTRY SEM.-I FLP-I

Sec. A: Attempt all 10 questions. Each question carries a mark weight of 2.

1 What is the effective nuclear charge?

What is the shielding effect?

What is the screening effect?

What are 5 carbides called?

6 Write the structure of diborane.

7 What is Borane?

8 Explain the terms affected conformation and transformed conformation.

9 Define stereoisomerism

10. Define rate of reaction.

Choose any 4 questions, choosing 1 question from each unit. Each question carries a mark weightage of 15

UNIT-I

1 Answer the following questions

a) The first ionization potential of the members of group 16 is less than that of the first ionization potential of the members of group 15

b) Why is the electron affinity of chlorine lower than that of chlorine?

c) What is inert pair effect

D) What is catenation

Or

(a) What are hydrides, write their methods of preparation, properties and uses (2016)

(B) Write the function of s-block elements in biological systems.

(C) Define electronegative autobiography. Explain the polling scale and rating scale for determining electronegative.

UNIT-II

2 Explain the brief 1. Structure of diborane 2. Interstitial carbide 3. Borazine reaction of

or

Classification of carbides, methods of preparation, properties and industrial applications Throw light.

UNIT-III

3 a What is isomerism? How many types are there? Explain with examples.

b Explain Fischer projection formula and funnel-shaped dash projection formula with examples.

What is C Conformation Different Beulen Conformations are known with the help of Newman projection formula.

Explain the Samvat structure

or

a What do you understand by optical isomerism? Which type of compound exhibits it? Explain it in detail taking the example of lactic acid.

b What do you understand by stereochemistry and stereoisomerism? How many types of stereoisomerism are there? Describe geometrical isomerism with examples.

UNIT-IV

4a) Define rate of reaction and explain the various factors affecting the rate of reaction.

b) Prove that the half-life of a first order reaction does not depend on the initial concentration of the reactants.

or

a. What is meant by the order and order of a reaction? Explain pseudo-order reaction with an example. b. Derive the disintegration rate equation of radioactive elements.

R.K. Science (P.G.) College, Kalwar, Jaipur

CHEMISTRY SEM.- I FLP-II

Sec. A. Attempt all 10 questions. Each question carries a mark weight of 2.

What is Slater's law?

2 Explain the effect of effective nuclear charge on period and group.

What do you understand by nuclear force of attraction?

4 What is nuclear fission?

5 What are logistics, give examples

6 Define isomerism

7 Name the types of isomerism.

8 Differentiate between configurational isomers and conformational isomers.

Name the factors that affect the rate of a reaction.

How does the concentration of a reactant affect the rate of a reaction?

Choose any 4 questions, choosing 1 question from each unit. Each question carries a mark weightage of 15

UNIT-I

2 Explain the following

a) chaining

b) What is effective nuclear charge and what is its effect on group and period?

C) Explain the Wonderwall radius

3 a) What is ionization potential? Explain the factors affecting ionization potential.

b.) What is atomic radius and how many types of atoms affect it?

Explain what are the factors that

4 a) What is electron affinity and explain the factors affecting it.

B) What is electronegative? Explain the factors affecting electronegative.

C) Explain how electronegative is affected across a period in a group.

D) Ionization energy in elements of groups 3 to 7

E) Electron affinity of elements from group III to VII

or

A) Define what is electronegative autobiography. Explain the polling scale and rating scale for determining electronegative.

B) Explain Allred and Roshev measurements of electronegative determination.

C) Explain the radiation relationship

UNIT-II

2 a) Describe the preparation methods and properties of Xeo4, XeO2F2 and XeOF4. Discuss their structure.

B) Give the method of preparation, properties and structure of XeF4.

C) Structure of XeO2F2.

Or

(A) Prove that the mean life of a radioactive substance does not depend on its initial dose.

(B) Square displacement rule

(c) Nuclear fission

UNIT-III

3 Write a comment on the following:

(i) Chair and spindle forms of cyclohexane

(ii) Explain the different conformations of ethane with diagram.

(iii) Explain isomerism in allene compounds.

(iv) What are erythrothio isomers?

or

Explain the methods to determine the orientation of geometrical isomers.

UNIT-IV

4 a) What do you understand by activation energy? Discuss Aranhia's theory of reaction velocity. Explain the graphical method of determining activation energy.

b) Radioactive disintegration is a first order reaction, explain.

a)) Explain the conductometric method of studying chemical kinetics.

b) Describe various methods of determining the orbit of a reaction.

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CHEMISTRY SEM.-I HLP-I

Sec. A Choose any 5 questions. Each question carries a mark weight of 2

SAT

What is the atomic radius?

What is the Wonderwall radius?

What is the covalent radius?

What is the ionic radius?

5 Define ionization potential

6 What are isotopes? Define and give examples.

7. Define what are even neutrons?

8 What is the average age?

9. Write the square displacement law.

What is artificial radioactivity?

Sec. Choose 1 question from each unit and choose 2 questions. The mark weight of each question is

UNIT-I

1 Answer the following questions

a) The first ionization potential of the members of group 16 is less than that of the first ionization potential of the members of group 15.

b) Why is the electron affinity of chlorine lower than that of chlorine?

c) What is inert pair effect

Or

What type of hydrides do S-block elements form?

B) Three methods of preparation of organometallic compounds of lithium, three properties and

Describe three uses.

C) Discuss the structure and bonding of ethyllithium.

D) Alkaline earth metals show +2 oxidation state in their compounds. Discuss

UNIT-II

Explain the following properties of p-block elements.

A) inert pair effect

B). oxidation state

c)) Why is iodine soluble in KI solution?

D) Discuss the structure of silicates and describe their properties on the basis of structure.

Or

A) Draw the structure of diborane and discuss its structure.

A) How does diborane react with 1. Ammonia 2. Chlorine 3. Sodium

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CHEMISTRY SEM.-I HLP-II

Sec. A Choose any 5 questions. Each question carries a mark weight of 2.

1. Define optical isomerism.

2 What is polarization?

3 Define the axis of symmetry

Explain centre of symmetry with an example.

5 What is molecular chirality

What are the 6 symmetry elements?

7 What is the Earth Age and Average or Middle Age?

State the dependence of the rate of reaction on temperature.

9. Define threshold energy.

10 What is the temperature coefficient?

Name the methods to determine the order of a reaction.

* Choose any 2 questions, choosing 1 question from each unit. Each question carries a mark weightage of 15

UNIT-III

1 Write a comment on the following:

(i) Specific rotation (ii) Image isomerism (iii) Fischer projection formula (iii) Symmetry element (iv) What is Walden inversion, give an example (v) Define racemic mixture and give an example

Or

2 Explain the following

i) What is racemization?

ii) Name the methods of separation of racemic mixture.

II) Write a note on planning

iv) Explain with an example the stereoisomers of a compound containing two stereoisomeric centres.

v) What is absolute configuration

UNIT-IV

2 a) Prove that the half-life of a first-order reaction is independent of the initial concentration, whereas the half-life of a second-order reaction is inversely proportional to the initial concentration.

Or

2 a) Generate integral and differential rate equations for zero order reaction do it

B) Explain the meaning and age of zero order, first order and second order reactions.

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CHEMISTRY SEM.-I QLP-I

Sec. A Choose any 2 questions. Each question carries a mark weight of 2

What is the Allred and Roshov measure of electronegative?

2 What is the inertial pair effect?

what is hydride

What are hydroliths?

5 What is the general electronic configuration of p-block elements? Tell the formula. Which elements of p-block are useful in our biological system.

What are the 6 carbon lithium compounds called?

7 Name the alkaline earth metals which do not impart colour to the flame.

Write the names of covalent hydrides of 8 s-block elements.

Why are alkali metals strong reducing agents?

Why do salts of alkali metals give colour to flames?

Which elements of the block are useful in our biological system?

What are the carbon lithium compounds called?

12 Name the alkaline earth metals which do not impart colour to the flame.

Write the names of covalent hydrides of 13 s-block elements.

Why are alkali metals strong reducing agents?

15 Why do salts of alkali metals give colour to flames?

16 Name two ligands with which lithium forms complexes.

17 Name the S-block elements found in chlorophyll and blood.

*Choose any 1 question. Each question carries 15 marks.

UNIT-I

1 Explain the following

a) Larger sized s-blocks do not form complexes. Explain.

B) What is a hydrolith? How does it react with water?

C) Write the properties and uses of S-segment.

d) Alkaline earth metals show the +2 oxidation state in their compounds. Discuss.

e) Solutions of alkali metals in liquid ammonia are blue in colour and are good conductors of electricity.

f) Beryllium does not give flame training. Explain.

2 a) Explain the following properties of S block?

1. Diagonal relationship 2. Solvation nature

3. To impart colour to the flame

b) Radiation relation between beryllium and aluminium. Write brief notes.

c) Lithium and magnesium show similar properties. Explain.

d) State the functions of -block elements in biological systems.

e) Explain the addition tendency of alkali metals.

3 Explain the following

a) The first ionization potential of the members of group 16 is less than that of the members of group 15

b) Why is the electron affinity of chlorine lower than that of chlorine?

C) inert pair effect

d. Explain alkyl and aryl compounds in detail.

Explain the following properties of 4p-block elements (2017)

A) Effects in the passive era

B) Atomic and ionic radii

C) What are hydrides, write their preparation methods, properties and uses (2016)

d) Write the function of s-block elements in biological systems.

5 a) What is electronegative autobiography? Define electronegative determination. Explain what is polling scale and rating scale for

b) Explain Allred and Roshev measurements of electronegative determination.

c) Explain the radiation relationship

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CHEMISTRY SEM.-I QLP-II

Sec. A Choose any 2 questions. Each question carries a mark weight of 2.

1 What is called inorganic benzene.

2 State the hybridisation in XeF_6.

3. State four general properties of noble gases.

4. The noble gases have very high values of ionization potential. Explain.

5 Give the structure of XeO3.

Write the type of hybridisation in XeO2F2.

7 Noble gases are monoatomic. Explain why.

8 Explain nuclear fission.

Write four properties of noble gases.

What are even neutrinos? Give examples.

Write the square displacement law.

12 Give the structure of diborane

13 What is Antara Kakshi Carbide

**Choose any 1 question. Each question carries 15 marks.

UNIT-II

.1 Answer the following questions

a) State the method of preparation, structure, properties and hybridisation of XeO3.

b) Explain the bonding in XeF2 and XeF4.

C) nuclear fusion and fission reactions

d) radioactive disintegration

2 Write a comment on the following:

a) mean age and average age

b) square displacement rule

C) State the reactions of borazine

d) What do you understand by nuclear fission?

3 Explain the following

a) Natural and artificial radioactive

b) Explain the general properties of P - block elements

4 a) Discuss the structure of silicates and explain their properties in terms of structure

b) What is Kadali Bandh

C) Write a note on hydrogen bomb

5 a) Write the three-dimensional shell structure of diborane B2H6 molecule and discuss it.

Explain the oxidation state of p block elements.

C) Write a note on inorganic benzene

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CHEMISTRY SEM.-I QLP-III

Sec. A Choose any 2 questions. Each question carries a mark weight of 2.

1 What is hybridization? Explain hybridization with two examples.

2 What is electronic displacement

3 What is inductive effect?

4 What is resonance?

5 What is the mesomeric effect?

6 Explain Extremely Human

7 What is the moment of a dipole?

What are organic acids and bases?

9 Explain the concept of compounding and belief fragmentation with examples.

10 What is the curved pilgrimage sign

11 What is Formula Charge

12 What is an electrophile? Give an example.

What is a nucleophile? Give an example.

*Choose any 1 question. Each question carries a mark weight of 15

UNIT-III

1 a) Explain the relative types of different conformations of cyclohexane and give the energy diagram of the relative stability of the different conformations.

b) Explain the expected stability of different conformations of butane with diagrams along with energy changes.

2 Write a note on the following:

(i) Chair and spindle forms of cyclohexane

(ii) Explain the different conformations of ethane with diagram.

(iii) Explain isomerism in allene compounds.

(iv) What are erythrothio isomers?

3) Explain the following

a) What is Atisi Human and what are its uses?

b) Explain heterogeneous fragmentation in society.

C) Explain nucleophilic and electrophilic with examples.

d) What is inductive effect

e) What is electronic displacement

4 a) What do you understand by optical isomerism? Which type of compounds exhibit it? Explain it in detail taking the example of lactic acid.

b) What do you understand by stereochemistry and stereoisomerism? How many types of stereoisomerism are there? Describe geometrical isomerism with examples.

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CHEMISTRY SEM.-I. QLP-IV

Sec. A Choose any 2 questions. Each question carries a mark weight of 2.

1. Define rate of reaction.

2. Define instantaneous velocity.

Explain the change in reaction rate with time with the help of a diagram.

Name the factors that affect the rate of a reaction.

How does the concentration of a reactant affect the rate of a reaction?

6 What is a reaction chamber? Define it and give an example.

7 What is chemical kinetics?

8 Define the enthalpy of a reaction and give an example.

How do catalysts affect the rate of a reaction?

10. Define specific reaction rate.

How does the nature of reactants affect the rate of a reaction?

*Choose any 1 question. Each question carries 15 marks.

UNIT-IV

1 Answer the following questions

a) Define zero order reaction and give an example.

b) Define first order reaction and give an example.

C) Define the half-life of a reaction

d) What are catalysts? Define them.

e) Write the rate law and mean age of zero order reaction.

2 a) Name the experimental methods of chemical force motion and explain one of these methods in detail.

b) Prove that the half-life of a second order reaction is inversely proportional to the initial concentration.

3 a) Derive the disintegration rate equations for radioactive elements.

b) Derive the integrated rate equation for a first-order reaction and state that the time required for 3/4 of the reaction to complete is 13/4 = 2. 303/K1 log4. I What is the unit of K1?

4 a) Derive the integrated rate equation for a second-order reaction.

b) Explain what collision theory is.

What do you understand by the order of a chemical reaction? Describe the appropriat methods to determine it