3. R.K. Vigyan (P.G.) Mahavidyalay, Kalwar, Jaipur
CHEMISTRY sem-III FLP-1

Sec. A Q.1 to 10 total =20 marks

1. Name those alkaline earth metals which do not impart colour to the flame? 2 Covalent of S-segment elements

Write the names of hydrides? Define Latimer diagram? 4. Name three sulphide minerals?5.

What is called redox potential? 6. How many types of solvents are there? Name them. 7 What is borazine? 8. Setzef

What is the rule? 9. What is an SN1 reaction? 10. Which quantity is larger, Cv or Cp?

UNIT-I

1. A. What is a hydrolith? How does it react with water?

1B Describe three methods of preparation of functional metallic compounds of lithium, three properties and three uses.

OR

Explain the following properties of 2S block? 1. Diagonal relationship 2. Solvation nature 3. To impart colour to the flame

UNIT-2

3. What is a Pourbaix diagram and explain its use with examples?

OR

What are the general principles of extraction of elements?

UNIT 3

4. What is Baer's distortion theory and state its limitations?

OR

Write short notes on the following.

(1) Kolbe electrolysis reaction (2) Wolff-Kishner reduction (3) Turret reaction

UNIT 4

5. (A) Define and explain Hess's law of constant heat summation and state its applications.

OR

Explain the difference between quantitative and categorical traits with examples.

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CHEMISTRY sem-3 FLP-2

Sec. A Q.1 to 10 total =20 marks

Which elements of the - block are useful in our biological system? 2. Name the alkaline earth metals which do not impart colour to the flame? 3. Write the structure of potassium ion complex with 18 crown 6 ethers. 4. Catenation What is it? 5 What is a carbide? 6 What is a banana bond? 7 What is the hybridization of XeF6? 8

What is a precipitation reaction? 9 What is an acid sieve reaction? 10 What is Hess's rule?

Sec-B

UNIT-1

1. (a) Explain why large 5-membered complexes do not form? (b) Solutions of alkali metals in liquid ammonia They are blue in colour and are good conductors of electricity.

Or

(a) Beryllium does not give flame training. Explain. (b) Solutions of alkali metals in liquid ammonia are blue in colour. And are they good conductors of electricity?

UNIT-2

2. (a) Explain the following? 1.Frost diagram 2. Latimer diagram

Or

(a) Ellingham diagram useful in the extraction of a metal from its oxide. (b) Disproportionation and Proportionation Please explain.

UNIT-3

3.1 Write short notes on the following: a. Corey-House reaction b. Diels-Alder reaction c.. Method of synthesis of cycloalkane by Perkin's method?

Or

(a) Write a method for the synthesis of 1.3-butadiene from ethyne. (b) Conjugated dieno on 1,2 and 1,4 Explain electrophilic addition reaction?

UNIT 4

4.(A) Prove that the work done in isothermal expansion of a gas will be: $W=nRT\log(V2/V1)$

(B) Prove that for isothermal expansion of an ideal gas, $\Delta H=0$?

OR

a. Prove using thermodynamics that the internal energy of an ideal gas at constant temperature is independent of volume.

b. Define heat of combustion, how is its experimental value determined, explain the applications of heat of combustion?

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CHEMISTRY sem-3 (Unit 1 & 2) HLP-I

Sec. A

1 What are the carbon lithium compounds called? 2 What type of solution do metals give in ammonia? 3 Name the S-block elements found in chlorophyll and blood? 4 With which elements do lithium and beryllium have diagonal relationship? 5 Which element shows maximum chaining? 6 Give the structure of XeO_3? 7 Which metals are found in the oxide state? 8 What is disproportionation? 9 State the physical properties of solvents. 10 Why are metal ammonia solutions blue in colour?

Sec-B

Unit -1

1. a. Explain the functions of s-block elements in biological systems. b. Lithium and magnesium exhibit similar properties. Explain?

or

a. Explain the following properties of p-block elements: 1. catenation 2. inert pair effect 3. Oxidation state

Unit-2

2 What are Frost diagrams? Explain the application of these diagrams, citing the example of manganese.

Or

Explain the following: 1. Classification of solvents 2. Ammonia decomposition 3. Precipitation reaction

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Chemistry sem-3(Unit 3 & 4) HLP-II

Sec.A

Give an example of a Diels-Alder reaction. What are nucleophilic and electrophilic (3)?

What is intermediate (4) What is 1,2 (additive)? (5) What is 1,4 addition? 6 constant

Define heat capacity at pressure. 7 Define heat capacity at constant volume. 8 What is a system? 9

What is meant by internal energy? 10 What is a path function?

Unit(3)

1. (a) Describe the following methods of preparing cycloalkanes?

1. Wislicenus method 2. Perkin method 3. Cine substitution reaction

OR

2. Complete the following reactions?

1.$CH_3CH_2Br+AgNO_2 \rightarrow$? 2.$CH_3CH_2Br+KNO_2 \rightarrow$? 3.$CH_3I+KCN \rightarrow$?

3.$CH_3I+AgCN \rightarrow$? 5.$C_6H_6OH+CCl_4+NaOH \rightarrow$?

6.$CHCl_3+Ag+heat \rightarrow$?

UNIT-4

1. (a) Prove that for isothermal expansion of an ideal gas, $\Delta H=0$?

(b) In isothermal reversible expansion, the system does maximum work?

OR

2. (a) The value of Cp is greater than Cv. Why?

(B) Write a short note on heat of neutralization?

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Chemistry sem-I(Unit 1) QLP-I

Sec. A

1. Why are alkali metals strong reducing agents? 2. Why do salts of alkali metals give colour to flames?

3. Name two ligands with which lithium forms complexes. 4. Why do salts of alkali metals impart color to the flame?

5. Why is LICI soluble in alcohol but not NaCl? 6. Why do alkali metals have a low tendency to form complexes?

7. What are two properties of the P block? 8. What are four general properties of the noble gases? 9. What do you understand by silicates? 10. What is inorganic benzene called?

Sec. B

Unit (1)

1 (a) Write the properties and uses of the s-block. (b) What type of hydrides do the s-block elements form? (c) 3.XeO3

Tell me the method of preparation, structure, properties and hybridization?

2.(a) Discuss the structure and bonding of ethyllithium?

(b) Alkaline earth metals show +2 oxidation state in their compounds. Discuss. (c) Draw the structure of diborane and discuss its structure.

3. Explain the brief?

(a). Structure of dardborane (b) Interstitial carbide (c) Reaction of borazine

4. (a) Describe the methods of preparation and properties of Xeo4, XeO2F2 and XeOF4. Discuss their structures.

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

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Chemistry sem-III(Unit 2) QLP-II

Sec. A

1. Write Latimer's law. 2. What is Elligen diagram? 3. What is proportionality? 4. Write square displacement law.

5. What is artificial radioactivity? 6. What do you understand by nuclear fission? 7. What do you understand by Frost diagram?

8. Write two uses of Pourbaix diagram. 9. Write two applications of Frost diagram. 10. What do you understand by redox potential?

Sec B

UNIT-II

1. What are the general principles of extraction of elements?

2. Explain the following types of reactions in liquid ammonia with suitable examples?

(a) Acid scrubbing reactions (b) Precipitation reactions (c) Metallic ammonia wilion

3. (a) Compare liquid sulphur dioxide and liquid ammonia as solvents?

(b) Explain why acetic acid behaves as a weak acid in water?

But liquid ammonia shows strong acid properties?

Explain why metallic ammonia is blue in colour?

4. Write a short note on the following?

1. (a) Natural and artificial radioactivity 2. Nuclear fusion and fission reactions (c) Radioactive disintegration

R.K. Vigyan (P.G.) Mahavidyalay, Kalwar, Jaipur

Chemistry sem-III(Unit 3) QLP-III

Sec. A

1. What is Baeyer's theory of denaturation? 2. What is the mechanism? 3. Give an example of a Hofmann elimination reaction. 4. Haloforms What is reaction? 5. What is a nucleophile? 6. Electron What is an affectionate? 7. What is an intermediate?

8. Define heat of formation. 9. What is Hess's law? 10. Define heat of formation.

Sec-B

UNIT-3

1. (a) Describe the following methods of preparing cycloalkanes?

1. Wislicenus method 2. Perkin method

(b) Give an example of Diels Alder reaction?

2 (a) Explain sn1 and sn2 reactions in alkyl halides with their stereochemical evidence?

(b) Cine substitution reaction?

3(a) Explain the blockade in the cyclopropane ring? (b) Kolbe electrolysis reaction?

4. Write notes giving the procedure?

(a) Haloform reaction? (b) Explain the reactivity of allyl, vinyl and aryl halides with respect to alkyl halides.

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Chemistry sem-III(Unit 4) QLP-IV

Sec. A

1. What does the inverse temperature of a gas depend on? 2. Define heat capacity at constant pressure and constant incidence?3. Define heat capacity? 4. Define state and path functions? 5. What is meant by internal energy? 6 Define enthalpy? 7. What is the concept of work? 8. Define the first law of thermodynamics? 9. What is a path function? 10. What is a state function?

Sec B.

1. (a) Prove that the pressure of an ideal gas is a state function.

(b) If the heat of combustion of 25° temperature ethanol (C_2H_5OH) is -1367kj and the possible heats of CO_2 and H_2O 393.4 kJ and -285.9 kJ, then calculate the heat of formation of ethanol?

2. (a) Explain extensive properties and intensive properties with examples.

3. (b) Which of the following are quantitative and specific properties? 1. Entropy 2. Temperature (temperature) 3. pressure 4. volume 5. viscosity 6. density

4 Explain Joule Thomson effect and Joule Thomson coefficient?

5. (a) Explain Kirchhoff's equation at constant volume?

(b) On what does the neutral temperature of a gas depend?