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SHIVAJI UNIVERSITY, KOLHAPUR
DATTAJIRAO KADAM ARTS, SCIENCE AND COMMERCE COLLEGE, ICHALKARANJI
B.Sc. (Part – II) (Semester – IV) (CBCS)
Examination October 2023
DSC-D4-Chemistry Paper VIII (Organic Chemistry)
Sub. Code: 78909

Day and Date: Friday, 10-11-2023

Total Marks: 50

Time: 10.30 a.m. to 12.30 p.m.

Instructions: 1) All questions are compulsory.

2) Figures to the right indicate full marks.

Q.1 A) Select the most correct alternative and rewrite the following sentences. **[5]**

- a) The potential energy of cyclohexane is maximum in.....conformtaion.
i) boat ii) twist boat iii) chair iv) half chair
- b) Reformatsky reaction is carried out in presence of.....
i) weak base ii) metallic zinc iii) Na salt of acid iv) Pyridine
- c) Fructose is
i) aldopentose ii) ketopentose iii) ketohexose iv) none of these
- d) Aldehyde is one of the reactant used inreaction.
i) Aldol condensation ii) Perkin iii) Cannizzaro's iv) all of these
- e)of the following is mono carboxylic acid.
i) oxalic acid ii) Succinic acid iii) Formic acid iv) Citric acid

B) Answer the following in one sentence.

[5]

- a) Carbonyl carbon has which geometry?
b) Which conformers are possible in butane?

- c) What are carboxylic acids? Why are they acidic in character?
- d) What is reducing sugar?
- e) What do you mean by Aldol Condensation?

Q. 2) Attempt any two of the following. [20]

- a) Discuss various conformations of cyclohexane with its structure.
- b) Discuss the evidences which led to cyclic structure of D (+) glucose.
- c) What is diazotisation? Describe the method of preparing of benzene diazonium chloride.
- d) Explain Perkin reaction with its mechanism.

Q.3) Write short notes on any four of the following. [20]

- a) Give any two methods of preparation of citric acid.
 - b) Explain classification of carbohydrates with examples.
 - c) Draw Newman projections of ethane conformers.
 - d) What is Knoevenagel reaction and its mechanism?
 - e) Describe structure and reactivity of carbonyl group.
 - f) Write a note on coupling reactions of benzene diazonium salt.
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SHIVAJI UNIVERSITY, KOLHAPUR

DATTAJIRAO KADAM ARTS, SCIENCE AND COMMERCE COLLEGE, ICHALKARANJI

B.Sc. (Part – II) (Semester – IV) (New) (CBCS)

Examination March/April, 2023

CHEMISTRY (Paper - VII)

DSC– D3: Inorganic Chemistry Sub.

Code: 78909

Day and Date: Wednesday, 14 -06-2023

Total Marks: 50

Time: 10.30 a.m. to 12.30 p.m.

- Instructions:
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Draw neat diagrams and give equations wherever necessary.
 - 4) Use of Scientific calculator and logarithmic table is allowed.

Q 1 A) Answer the following in one sentence.

[05]

- a) Define Polydentate ligand ?
- b) Name the group reagents for group I.
- c) What will be the resultant solution, if solubility product < ionic product.
- d) If the metal has $sp^3 d^2$ type hybridization then which type geometry of this metal complex
- e) Give the IUPAC name of $[Co(NH_3)]Cl_3$

B) Choose the most correct alternative for each of the following and rewrite the sentences.

[05]

- a) Name the group reagents for group II -----
a) HCl & H₂S b) KBr c) NH₄Cl d) Na₂CO₃
- b) Highest oxidation state of Mn is -----
a) +8 b) +6 c) +7 d) +9
- c) d-block elements is called as -----
a) alkali metal b) noble gas c) halogens d) transition elements
- d) The atomic number of Nitrogen is -----
a) 5 b) 7 c) 8 d) 13

- e) Co-ordinate bond is indicated by -----
b) small arrow b) hyphen c) small dash d) dotted line

Q 2) Attempt any TWO of the following.

[20]

- What are boranes? How will you prepare diboranes ? Discuss it's structure in detail.
- What is Chelation? Explain the application of chelation with reference to EDTA and DMG.
- What are general characteristics of transition metal and Give the electronic structure of 3d block elements (First transition series).
- On the basis of VBT, explain the formation of $[\text{FeF}_6]^{3-}$ and $[\text{FeF}_6]^{3-}$.

Q.3) Answer any four of the following.

[20]

- Distinguish between primary valency and secondary valency.
- Define and explain co-ordinate bond with suitable example.
- Explain oxidation state of 3d block elements.
- Discuss the spot test analysis.
- Write a note on common ion effect.
- What are allotropes? Explain structure of diamond.

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DATTAJIRAO KADAM ARTS, SCIENCE AND COMMERCE COLLEGE, ICHALKARANJJI
B.Sc. (Part – II) (Semester – IV) (CBCS)
Examination March/April 2023
DSC-D4-Chemistry Paper VIII (Organic Chemistry)
Sub. Code: 78909

Day and Date: Thursday, 15-06-2023

Total Marks: 50

Time: 10.30 a.m. to 12.30 p.m.

*Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.*

Q 1 A) Answer the following in one sentence. [5]

- a) Which conformers are possible in ethane?
- b) Why carbonyl carbon gets positive charge?
- c) What are unsaturated acids? Give any two examples.
- e) What is epimer?
- f) What is Hofmann rearrangement?

B) Select the most correct alternative and rewrite the following sentences. [5]

- a) Hoffmann degradation method of amine synthesis formsamines.
 - i) alkyl
 - ii) alkenyl
 - iii) aryl
 - iv) any of these
- b) Polyhydroxy aldehyde are called
 - i) aldose
 - ii) polyaldehydes
 - iii) ketoses
 - iv) polysaccharides
- c) Aldol condensation is shown by aldehydes.....
 - i) carrying hydrogen atom
 - ii) not carrying hydrogen atom
 - iii) other than formaldehyde
 - iv) carrying α -hydrogen atom
- d)of the following is mono carboxylic acid.
 - i) oxalic acid
 - ii) Succinic acid
 - iii) Formic acid
 - iv) Citric acid
- e) The potential energy of cyclohexane is maximum in.....conformation.
 - i) boat
 - ii) twist boat
 - iii) chair
 - iv) half chair

Q 2) Attempt any two of the following.

[20]

- a) Discuss relative stabilities of cyclohexane conformers with potential energy curve.
- b) What is diazotisation? Describe the method of preparing of benzene diazoniumchloride.
- c) Establish open chain structure of D (+) glucose.
- d) Describe structure and reactivity of carbonyl group.

Q 3) Write short notes on any four of the following.

[20]

- a) Give any two methods of preparation of cinnamic acid.
- b) Explain classification of amines with suitable examples.
- c) What is Cannizzaro reaction and its mechanism?
- d) Draw Newman projections of n-butane conformers.
- e) Explain Perkin reaction with its mechanism.
- f) What are carbohydrates and how they classify?