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VI Semester B.Sc Degree Examination, August/September - 2023

CHEMISTRY**Inorganic Chemistry**

(CBCS Scheme Freshers 2022-23 Onwards)

Paper : VII**Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

1. The question paper has two parts. Answer both the parts.
2. Write equations, draw diagrams, wherever necessary.

PART - A**Answer any five of the following questions. Each question carries seven marks.****(5×7=35)**

1. a) Describe the manufacturing process of urea including the process, drying and finishing steps.
b) Differentiate direct and indirect fertilizers. **(5+2)**
2. a) What is glass? Write any four general properties of a glass.
b) Provide a detailed overview of the manufacturing process of calcium ammonium nitrate. **(4+3)**
3. a) Explain the steps involved in manufacture of port land cement.
b) Write a note on glazing of ceramic wares. **(4+3)**
4. a) Mention the composition and one use of each borosilicate glass and lead glass.
b) Write the applications of high technology ceramics. **(4+3)**
5. a) Write the composition of oil paints and give the role of each constituent with an example.
b) What are the objectives of surface coatings? **(4+3)**
6. a) What are heat retardant paints and fire retardant paints.
b) What is the purpose of decarbonisation in the manufacture of steel. **(4+3)**

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7. a) What are explosives? How they are classified Give an example.
b) What are ferro alloys and non ferrous alloys give an example for each. (4+3)

PART - B

Answer any five of the following questions. Each question carries seven marks.

(5×7=35)

8. a) Write a note on carbon nanotubes.
b) What is meant by co-precipitation method. (4+3)
9. a) What are nanomaterials? Explain the process of preparation of gold nano particles.
b) What are bionano composites? Give an example. (4+3)
10. a) How are Inorganic solids synthesized using hydro thermal method?
b) What are different applications of nitrogen. (4+3)
11. a) How carbon monoxide gas is produced on a large scale? Give its uses.
b) What are the different hazards in handling argon? Mention its uses. (4+3)
12. a) Explain the process used for the production of Nitric acid.
b) Write the uses and different hazards in handling hydrochloric acid. (4+3)
13. a) Mention the applications and hazards in handling potash alum and potassium dichromate.
b) What are the different methods used in disposal of nuclear waste? (4+3)
14. a) Discuss the advantages and disadvantages of coal as an energy source.
b) Explain the classification of energy sources into renewable and non renewable sources. (4+3)
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VI Semester B.Sc Degree Examination, August/September - 2023

CHEMISTRY**Organic Chemistry**

(CBCS Scheme - Freshers (2022-23 Onwards))

Paper : VIII**Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

1. The question paper has two parts. Answer both parts.
2. Draw Diagram and chemical Equations wherever necessary.

PART - A**Answer any five of the following questions. Each question carries seven marks.****(5×7=35)**

1. a) Mention four advantages of spectroscopic method over conventional method.
b) Compare the uv spectral data of acetone and methyl vinyl Ketone. **(4+3)**
2. a) Explain the types of bending modes of vibrations in IR spectroscopy.
b) How is IR spectrum used to distinguish between free - OH groups and Hydrogen bonded-OH groups. **(4+3)**
3. a) Explain shielding and de shielding of protons in NMR spectroscopy.
b) What is TMS? Where it is used? Give its structure. **(4+3)**
4. a) What are active methylene compounds? Give the preparation of Ethyl aceto acetate.
b) How do you convert Diethyl malonate to barbituric acid. **(4+3)**
5. a) Explain the optical isomerism in Lactic acid.
b) Write the R and S configuration of the following compounds.
 - i) 1-bromo-1-chloro ethane
 - ii) Bromo chloro acetic acid. **(3+4)**

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6. a) What is Resolution? Explain the chemical method of resolution of a racemic mixture.
b) Explain chemical method of determination of configuration of geometric isomers. (4+3)
7. a) Explain plane and centre of symmetry with an example.
b) Draw the graphical representation of uv spectrum of 1,3 - butadiene and indicate λ_{\max} (4+3)

PART - B

Answer any five of the following questions. Each question carries seven marks.

(5×7=35)

8. a) How are drugs classified on the treatment of diseases not due to infection.
b) How is paracetamol synthesised? (4+3)
9. a) What are antibiotics and antibacterial drugs? Give examples for each.
b) How do you show that the presence of N-CH₃ group in Nicotine. (4+3)
10. a) Describe the synthesis of citral from methyl heptanone.
b) Write the structure and uses of α -terpineol. (4+3)
11. a) Write any four general characteristics of alkaloids.
b) Give one medicinal use of Atropine, Quinine and morphine. (4+3)
12. a) What are conducting polymers? Give the preparation of poly aniline.
b) How is PVC manufactured? Give its uses. (4+3)
13. a) Explain the aromaticity of pyrrole.
b) How is pyridine and Thiophene prepared from acetylene. (3+4)
14. a) Give any four principles of green chemistry.
b) How is Indole synthesized by Fischer's synthesis. (4+3)
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