DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

First Semester

INORGANIC CHEMISTRY – I

(CBCS 2018–19 Academic Year onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Differentiate between electron affinity and electro negativity.

2. Give Born-Lande equation for calculation of lattice energy.

3. What are the advantages of Bronsted concept?

4. Define: pH.

5. What are heteropoly acids?

6. Give the general formula of ortho and pyro silicates.

7. Draw FCC structure.

8. What types of voids are present in closest packing?

9. What is metal deficiency defect?

10. Give the MO diagram of O_2 molecule.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Explain the sp and sp^3 hybridisation.

Or

(b) Explain the diamagnetism of nitrogen molecule on the basis of MO theory.

12. (a) Discuss the Bronsted concept of acids and bases. What are the applications and limitations.

Or

(b) Boron trihalides are called Lewis acids. Explain.

13. (a) Discuss briefly about Keggin's structure on polyacids.

Or

(b) Write a short note on:

(i) Zeolites and

(ii) Clay minerals.

14. (a) What is close packing? Explain types of closed packed structures.

Or

(b) Explain Schottky and Frenkel defects in stiochiometric crystals.

15. (a) Write the properties of ionic compounds.

Or

(b) Explain band theory of solids.

D–1573

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions

16. State the VSEPR theory. Explain the shapes of molecules by using VSEPR theory.

17. Discuss briefly HSAB principle, applications and limitations.

18. How are silicates classified? Give structure for each type.

19. Discuss intrinsic and extrinsic semiconductors with suitable examples.

20. (a) Explain Lewis concept of acids and bases. (5)

    (b) Explain the structure of isopoly and hetero poly anions. (5)

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3   **D–1573**

DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

First Semester

ORGANIC CHEMISTRY-I
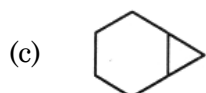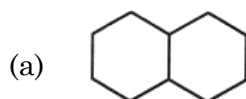
(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks
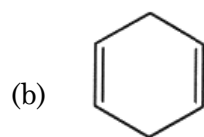
PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Give IUPAC names for each of the following bicyclic compounds.

    (a)

    (b)

    (c)

    (d)

2. [10] annulenes are not aromatic, why?

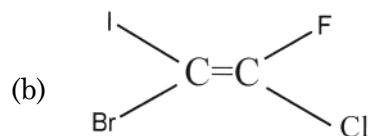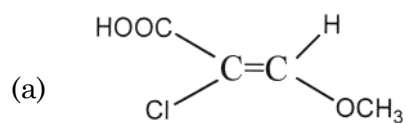3. Which among the following is antiaromatic? Give reason:

(a)

(b)

(c)

4. Differentiate configuration and conformation.

5. Explain the term helical chirality.

6. State Hammonds postulate.

7. What is Gattermann-Koch formylation. Give an example

8. Assign E or Z configuration to the following:

(a)

(b)

9. Define ortho/para ratio.

10. What are the criteria for aromaticity?

D–1574

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are annulenes? Explain the aromaticity of [14] annulene system.

Or

(b) Explain the stability of the organic compounds based upon hyperconjugation.

12. (a) Describe Chan-Ingold-Prelog rules for assigning the configuration of a chiral carbon.

Or

(b) Give a brief account on the stereochemistry of binaphthyls compounds.

13. (a) Sketch the mechanism of favorskii rearrangement.

Or

(b) Explain the mechanism of Wagner-Meerwein rearrangement

14. (a) Explain the mechanism of S_{Ni} reaction with example

Or

(b) Discuss benzyne mechanism.

15. (a) Differentiate S_N1 and S_N2 mechanism.

Or

(b) Explain the optical activity of biphenyl.

D–1574

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are aromatic, antiaromatic and non- aromatic compounds? Give one example of each.

17. Explain planar chirality and axial chirality.

18. Discuss the mechanism of Stern and Beckmann rearrangement.

19. Discuss the mechanism of S_E1 and S_E2 reaction.

20. Give the reaction mechanism of the following:
    (a) Nitration
    (b) Halogenation
    (c) Sulphonation
    (d) Friedel-craft alkylation.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2021.

First Semester

Chemistry

PHYSICAL CHEMISTRY-I

(CBCS 2018-19 Academic year onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   Define entropy?

2.   Write the First Law of thermodynamics.

3.   What is the difference between activity and Fugacity?

4.   What is Transport number?

5.   What is EMF in simple words?

6.   What is electrode and electrode potential?

7.   What is a wave function in quantum mechanics?

8.   Why do we use matrix representation in Quantum mechanics?

9. What do you mean by steady state approximation?

10. What is the most powerful explosive material?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss the Carnot's cycle clausius inequality.

Or

(b) Derive the Maxwell relations.

12. (a) Discuss the Zeroth Law of thermodynamics.

Or

(b) Derive the Debye Huckel of interionic attraction.

13. (a) State Heisenberg's uncertainty principle.

Or

(b) What is meant by degeneracy? Explain.

14. (a) What are fast reactions? Give example.

Or

(b) Write note on the Kinetic isotopic effect.

15. (a) Write the principal of microscopic reversibility.

Or

(b) Describe the Eigen value and eigen function.

D–1575

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write detail notes on Gibbs and Helmholtz free energies equation and application.

17. Write notes on the electrode potential and Nernst equation.

18. Write notes on Block body radiation and photoelectric effect.

19. Discuss the ARRT to bimolecular reactions.

20. What do you mean by potential energy surface? Write details notes.

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3   **D–1575**

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2021.

Second Semester

Chemistry

INORGANIC CHEMISTRY – II

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Explain geometrical isomerism in any two square planar complexes.

2. What is spectrochemical series?

3. Write down the evidences for CFSE.

4. Differentiate Anti-ferric and ferro-magnetism.

5. What is liquid drop model?

6. Elucidate the laws of radioactivity.

7. Define transmutation reaction with example.

8. Give applications of carbon dating.

9. Predict the electronic configuration of Ce and Th.

10. Give uses of Lanthanides and actinides.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What is geometrical and optical isomerism? Discuss them in tetrahedral complexes.

Or

(b) Explain about strong and weak ligand field splitting.

12. (a) Write about the splitting of d-orbitals in octahedral complexes.

Or

(b) Bring out the factors in VBT and CFT.

13. (a) Define Q-value and explain about threshold energy.

Or

(b) What is radioactive decay and discuss the theories of decay process.

14. (a) Explain about the fragmentation process in nuclear reactions.

Or

(b) Describe neuron activation analysis.

15. (a) Describe Fractional crystallization technique.

Or

(b) Describe lanthanide contraction and its consequences.

2   **D–1576**

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. (a) What is John-Teller distortion? (5)

    (b) What are the factors affecting 10 Dq system? (5)

17. Describe briefly the MOT in octahedral, tetrahedral and square planar complexes. (10)

18. (a) What are the factors affecting nuclear stability? (4)

    (b) Describe the principle and working of Geiger muller counter. (6)

19. (a) Distinguish between Nuclear fission and nuclear fusion. (5)

    (b) Describe cyclotron and synchrotron. (5)

20. Explain the lanthanide separation techniques by

    (a) Precipitation method. (5)

    (b) Solvent extraction method. (5)

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2021.

Second Semester

Chemistry

ORGANIC CHEMISTRY – II

(CBCS 2018-19 Academic Year onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   State Darzen reaction.

2.   Write all the possible confirmation of n — butane.

3.   Write Paterno- Buchi reaction.

4.   What is bredts rule? Give two examples.

5.   Write Sandmeyer and pschorr reaction.

6.   Write Diels Alder reaction.

7.   Give one example each for (1,3) and (3,3) Sigmatropic rearrangement.

8.   Define Cis-Trans isomerism; give two examples.

9. Write Cannizaro reaction.

10. Define regioselectivity; give some examples.

PART B — (5 × 5 = 25 marks)

Answer ALL questions by Choosing either (a) or (b).

11. (a) Define Norrish type I and II reaction with example.

Or

(b) Mechanism of Aldol and Dickmann Condensation.

12. (a) Write a note on Photosensitization.

Or

(b) Distinguish between Enantiotopic and diastereotopic.

13. (a) Explain Cope and Claisen rearrangement.

Or

(b) Define perturbation Theory.

14. (a) Explain Beckmann and Schmidt rearrangement.

Or

(b) Define Photo chemical reaction of Olifins.

15. (a) Write a note on di – pi methane rearrangement.

Or

(b) Write rearrangement reaction of carbenes

D–1577

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain Frontier molecular orbital theory.

17. Explain E1, E2, E1CB mechanism.

18. Write a note on,

    (a) Michael addition

    (b) Hydration of olefins

    (c) Witting reaction

19. Explain,

    (a) concept of pyrolytic cis elimination

    (b) Hoffmann and staytzeff rules

20. Write the mechanism of hydroboration and Gomberg reaction

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D–1577

DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

Second Semester

PHYSICAL CHEMISTRY – II

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1.   Define adsorption.

2.   Define contact angle.

3.   What is photo physical processes?

4.   Define chemiluminescence.

5.   What is addition polymerization?

6.   Give role of initiators during polymerization reaction.

7.   Define functionality of a monomer.

8.   What are lyophobic colloids?

9.   Why gas in gas is not classified as colloid?

10.   What are polymer electrolytes?

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

11. (a) Explain the formation of micelles using surfactants.

Or

(b) Discuss about Langmuir–Rideal mechanism.

12. (a) Discuss the mechanism of fluorescence.

Or

(b) Write a note on hydrogen – chlorine reaction.

13. (a) Explain the determination of quantum yield in a photochemical reaction.

Or

(b) Explain how the pulsed radiolysis technique assists in the fast reaction kinetics of biological molecules.

14. (a) Discuss the mechanism of anionic polymerization.

Or

(b) Discuss the importance of bulk polymerization.

15. (a) Write a note on dye sensitized solar cells.

Or

(b) Explain how the charge on the colloid is determined by electro-osmotic method.

D–1578

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail about Langmuir adsorption isotherm.

17. Write a note on :

    (a) Flash photolysis (6)

    (b) Radiative and non-radiative transitions (4)

18. Explain the process of emulsion polymerization technique.

19. Give a detailed account on dentrimers.

20. Write a note on :

    (a) Emulsion polymerization (5)

    (b) Light scattering method of determining molecular mass of a polymer. (5)

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D–1578

DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION, DECEMBER 2021.

Third Semester

ADVANCED INORGANIC CHEMISTRY

(CBCS 2018 – 19 Academic Year Onwards)

Time : 3 hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   Give an example for complementary and non–complementary reactions.

2. $[Cu(NH_3)_4]^{2+}$ is less stable than $[Cu(en)_2]^{2+}$. Why?

3.   What are orgel diagrams?

4.   Give an example for perovskite structure.

5.   What is meant by oxidative addition?

6.   What is the role of Cu^{2+} in Wacker process?

7.   Give the catalysts involved in Zeigler–Natta polymerisation and Monsanto process.

8.   What is the role of Mg in chlorophyll?

9.   What are cytochromes?

10.   Name any two chelating agents in medicine.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What is meant by stability constant? Derive the relation between stepwise and overall formation constants.

Or

(b) Discuss briefly the spectrometric method of determining stability constant.

12. (a) Describe the acid hydrolysis reaction involving in octahedral complex.

Or

(b) Explain the outer sphere mechanism with suitable example.

13. (a) Discuss the electronic spectrum of $\left[Ti(H_2O)_6\right]^{3+}$ in detail.

Or

(b) What are metal clusters? Explain briefly the structure of dinuclear clusters.

14. (a) Discuss the structure of olefin complexes with suitable example.

Or

(b) Discuss the catalytic activity of Wilkinson's catalyst in alkene hydrogenation reaction.

15. (a) What is sodium ion pump? Explain.

Or

(b) Discuss the structure and function of carboxy peptidase–A.

D–1579

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. (a) What is trans effect? Explain with suitable examples. (5)

(b) What is meant by chelate effect? Explain this on the stability of complexs. (5)

17. What are Tanabe–Sugano diagram? How are they differ from Orgel diagram? Discuss the Tanabe–Sugano diagram for d^2 configuration.

18. (a) Explain the mechanism involved in Zeigler–Natta polymerisation. (5)

(b) Discuss the spinel structure and explain its types. (5)

19. How is ferrocene prepared? Give its properties and discuss its structure.

20. What is meant by nitrogen fixation? Discuss briefly the in vivo nitrogen fixation with suitable example.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2021.

Third Semester

Chemistry

ADVANCED ORGANIC CHEMISTRY

(CBCS 2018 – 19 Academic Year Onwards)
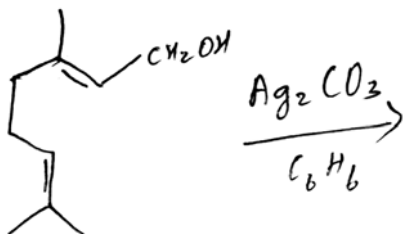
Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the role of metals in heterogeneous hydrogenation.

2. What is prevost reaction?

3. Predict the product

4. What are synthons?

5. Define the term chemoselectivity.

6. Write the differences between DNA and RNA.

7.   Draw the structure of maltose.

8.   What is co-enzyme?

9.   What are alkaloids?

10.   Give the classification of vitamins.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11.   (a)   Discuss the mechanism of Wilkinson catalyst.

Or

(b)   Explain the applications of peroxide in the conversion of alkenes to epoxide.

12.   (a)   What is Birch reduction? Write any two synthetic applications.

Or

(b)   Explain the structure of Flavone.

13.   (a)   Discuss the principle of protection of alcohols.

Or

(b)   With the help of suitable example, discuss one group $C-C$ disconnections.

14.   (a)   Write the structural classification of proteins.

Or

(b)   Explain the structure of cellobiose.

15.   (a)   Discuss the biosynthesis of ferpenes.

Or

(b)   Write the synthesis of morphine.

D–1580

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the applications of metals in the conversion of alcohols to carbonyl compounds.

17. (a) What is MPV reduction? Give its applications. (6)

(b) Write the synthesis of oxazole. (4)

18. Describe the synthesis, structure and reactivity of Indole.

19. Write the complete structural elucidation of cholesterol.

20. Explain the following:

(a) Solid phase peptide synthesis. (6)

(b) RNA transcription and translation. (4)

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DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION, DECEMBER 2021.

Third Semester

SPECTROSCOPY–APPLICATIONS IN ORGANIC AND INORGANIC CHEMISTRY

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define the term chromophore.

2. How will you differentiate the presence of carbonyl group in aldehydes and ketones?

3. What is Fermi resonance?

4. Which type of nuclei show magnetic properties for the purpose of NMR spectroscopy?

5. How many NMR signals are observed in the spectra of the following compounds?

   (a) $CH_3 - O - CH_3$

   (b)
   $$\overset{\displaystyle O}{\underset{\displaystyle \|}{}}$$
   $CH_3 - CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$

6. Why is tetramethyl silane (TMS) used as a standard reference in NMR?

7. Give the statement of Nitrogen rule.

8. Define cotton effect.

9. Write the principle of thermometric titrations.

10. Give any two applications of flame photometry.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are charge transfer complexes? Explain.

Or

(b) What are the factors which influence the positions of absorption frequencies from their normal value in IR spectroscopy? Explain.

12. (a) What are shift reagents? Give their significance.

Or

(b) Discuss the applications of ^{13}C NMR spectroscopy.

13. (a) What is Nuclear overhauser effect? Explain.

Or

(b) Give a comparative study of ESR and NMR spectroscopy.

D–1581

14. (a) Write a note on McLafferty rearrangement.

Or

(b) With a neat diagram discuss the instrumentation of mass spectroscopy.

15. (a) State and explain α–haloketone rule with an example.
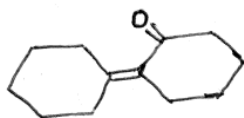
Or

(b) Give the principle and applications of turbidimetric analysis.

PART C — ($3 \times 10 = 30$ marks)

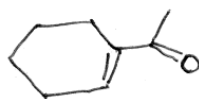Answer any THREE questions.

16. Using Woodward Fieser rule, calculate the λ_{max} value for the following compounds.

(a)

(b)

(c)

$$\begin{matrix} CH_3 & & CH_3 \\ \backslash & & / \\ & C = C & \\ / & & \backslash \\ CH_3 & & COCH_3 \end{matrix}$$

(d)
$$\begin{matrix} & CH_2 & \\ & \| & \\ CH_3 - CH_2 - & C - COCH_3 \end{matrix}$$

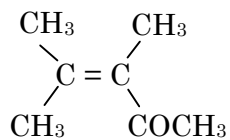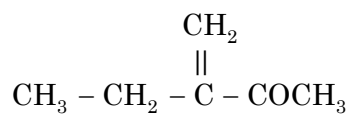17. Define the following

    (a)   (i)   Over tones   (2)

          (ii)   Combination bands   (2)

    (b)   What are the factors affecting chemical shift value? Explain.   (6)

18. Discuss the applications of ESR spectra in the study of organic and inorganic compounds.

19. Describe the applications of ORD and CD curves.

20. Give the principles of the following techniques: (4+3+3)

    (a)   Thermogravimetric analysis.

    (b)   Differential thermal analysis.

    (c)   Differential scanning calorimetry.

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DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

Fourth Semester

ANALYTICAL CHEMISTRY

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is meant by significant figures?

2. How is confidence limit expressed?

3. What are ion-selective electrodes? Give example.

4. Define the term throwing power.

5. What is ilkovic equation?

6. How is R_f value calculated?

7. Point out the importance of HPLC.

8. Mention the different types of detectors used in GC.

9. What are cation exchange resins? Give examples.

10. What is meant by electrophoretic mobility?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

11. (a) Explain the difference between precision and accuracy of a set of analytical data.

Or

(b) Discuss the rejection of data based on Q test.

12. (a) Describe briefly the voltammetry technique.

Or

(b) Illustrate the principle involved in redox type potentiometric titration.

13. (a) How will you determine the concentration of metal ions in solution by electro gravimetric method?

Or

(b) Give a brief account on controlled potential coulometry.

14. (a) Discuss the principle and working of TLC.

Or

(b) Describe the instrumentation of HPLC with a neat block diagram.

15. (a) Discuss briefly about gel permeation chromatography.

Or

(b) Write a short note on electrodialysis.

2 **D-1582**

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the classification of errors.

17. Discuss the principle and instrumentation of polarography.

18. Describe the principle and applications of gas chromatography.

19. Discuss the principle and instrumentation of GC-MS.

20. Explain the following purification techniques :

    (a) Sublimation

    (b) Distillation and vacuum distillation   (4 + 6)

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3   **D-1582**

DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

Fourth Semester

APPLIED CHEMISTRY

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   What is mean by Acid rain?

2.   Define electrochemical corrosion.

3.   What are corrosion inhibitors?

4.   Give the type of fuel cells.

5.   What is mean by throwing power?

6.   Define Anodizing.

7.   Define nanomaterials in chemistry.

8.   What are spectral methods of nanomaterial characterization?

9.   Define search engines.

10.   What is mean by virtual lab?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

11. (a) What is called green house effect and explain their ill effects.

Or

(b) Write about the tertiary methods of wastewater treatment.

12. (a) Give an account of general classification of corrosion control methods.

Or

(b) Write about the Pourbaix diagram for Fe-H_2O system.

13. (a) Give an account of principles of electroplating methods.

Or

(b) Write about the composite coatings and their advantages.

14. (a) Give an account of limitations of electroless plating.

Or

(b) Write about the alloy plating of Brass.

15. (a) Write about the microemulsion method of nanomaterial preparation.

Or

(b) Write about the TG/DTA and DSC methods of nanomaterial characterization.

2 **D–1583**

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write about the physicochemical and biological investigations of water quality.

17. Write about the classification of batteries with suitable examples.

18. Write about the electrochemical methods of corrosion protection.

19. Write about the electroplating of nickel and copper.

20. (a) Explain the pulsed laser deposition method for nanomaterial preparation. (5)

    (b) Explain the XRD and FT-IR methods of nanomaterial characterization. (5)

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DISTANCE EDUCATION

M.Sc. (Chemistry) DEGREE EXAMINATION,
DECEMBER 2021.

Fourth Semester

ADVANCED PHYSICAL CHEMISTRY

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define the term partition function.

2. What is symmetry factor "σ"?

3. Define heat capacity.

4. Give the names of two approximation methods used in quantum study.

5. State Pauli's mutual exclusion principle.

6. What are symmetry elements?

7. Define a cyclic group.

8. What are reducible representations?

9. What is secondary salt effect?

10. What are enzyme catalysts?

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b).

11. (a) Write a note on negative kelvin temperature.

Or

(b) Account on Onsager's reciprocal relationship.

12. (a) Explain the time independent perturbation method for solving wave equation.

Or

(b) Derive the expression for normalized wave function of simple harmonic oscillator.

13. (a) Explain the concepts of great orthogonality theorem.

Or

(b) Deduce the matrix representation for $S_n(Z)$ operation.

14. (a) Predict the IR active modes of ammonia molecule in the view of group theory.

Or

(b) Write the properties of irreducible representation.

15. (a) Discuss the effect of pH in enzyme kinetics.

Or

(b) Illustrate the importance of Hammett equation.

2 **D–1584**

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Derive Bose – Einstein expression for most probable distribution of arranging "N" number of particles among various energy levels.

17. Deduce the energy expression for a rigid rotator system.

18. Construct the character table for C_2V point group.

19. Derive Michaelis – Menton equation.

20. Account on the following :   (3 + 5 + 2)

    (a) Abelian group

    (b) Vibrational partition function

    (c) Thermodynamic probability.

————————

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