Sl.No.1345 Course Code: 72817101

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University), SALEM

M.Sc. (CHEMISTRY) DEGREE EXAMINATION - November 2018
First Semester

DSC I: ORGANIC CHEMISTRY - I

Time: Three hours Maximum: 70 marks

PART – A (5 x 6 = 30)

(Answer ALL Questions)

1. a) Briefly explain the primary and secondary nomenclature of compounds with functional groups.

(OR)

b) Explain the aliphatic and aromatic functional group molecules with suitable example.

2. a) Define and give example of the following :
i) Nucleophiles and Electrophiles

(OR)

b) Explain the concept of Bronsted-Lowry acids and bases.

3. a) Give the preparation and properties of alkynes. Give example.

(OR)

b) Write a note on hydroboration of alkenes.

4. a) What is meant by aromaticity? Explain Huckel rule with suitable example.

(OR)

b) What is meant by steric effect? Explain it with suitable example.

5. a) Write a note on Enolate Reactions.

(OR)

b) Give the preparation and reaction of ethers and thioethers.

PART – B (4 x 10 = 40)

(Answer any FOUR Questions)

6. What are functional groups? Explain in detail about the tertiary and quaternary nomenclature of functional groups.
7. Discuss the stereochemistry of alkenes and cycloalkanes.
8. Explain the following :
   i) Acid and Base strength
   ii) Lewis acids and bases.
9. How will you synthesize di-and tri substituted benzene. Explain it with suitable example.
10. Explain the Reactions of enolate ions.
11. Discuss about the structure and properties of Carboxylic acids and carboxylic acid derivatives.
12. How will you prepare the following :
    i) Epoxides ii) Derivatives of ethers.

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Sl.No.1929 **Course Code: 72817102**

VINAYAKA MISSIONS RESEARCH FOUNDATION, SALEM
(Deemed to be University)

M.Sc.(CHEMISTRY) DEGREE EXAMINATION - November 2018
First Semester

DSC – II INORGANIC CHEMISTRY

Time: Three hours Maximum: 70 marks

PART – A (5 x 6 = 30)
(Answer ALL Questions)

1. a) Draw and explain the molecular orbital diagram for CO molecule.(or)
   b) Explain the types of Molecular symmetry.
2. a) Draw and explain the simple structures of binary compounds.(or)
   b) Write the electrical properties of solids.
3. a) Write the preparation, properties and uses of alkali metals. (or)
   b) Explain the chemistry of noble gases.
4. a) Explain Ligand Field Theory. (or)
   b) Write the applications of Lanthanides and Actinides.
5. a) Explain the Origin and abundance of the elements. (or)
   b) Write the bulk inorganic chemicals and its uses.

SECTION- B

(4X10=40)

ANSWER ANY FIVE QUESTIONS

6. Explain about VSEPR theory.
7. Write the types of solvents and its properties.
8. Write the properties and applications of metals and non-metals.
9. Explain the electronic spectra and mechanism of complexes.
10. Explain Environmental cycling and pollution.
11. Explain the chemistry of group-14 elements.

Sl.No.1629 **Course Code: 72817103**

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM

(Deemed to be University)

M.Sc. (CHEMISTRY) DEGREE EXAMINATION - November 2018

First Semester

DSC – III PHYSICAL CHEMISTRY

Time: Three hours Maximum: 70 marks

PART – A (5 x 6 = 30)

Answer ALL questions

1.(a). Write the Closed and Open System.?(Or)
(b).Write the molar Thermodynamic function.?

2. (a).Write the derivation of Gibbs equation ?(Or)

(b) Explain the Absolute entropy.

3. (a) Write the Application of Thermodynamics?(Or)

(b). Write short notes on Cooling and Heat engine?

4.(a).Write the Thermodynamic of homogeneous mixture ?(Or)
(b) Explain the Activity Coefficient?

5.(a) Write short notes on boiling point and normal boiling point .(Or)

(b) Explain the Phase rule and Gibbs phase rule.?

SECTION – B **(04X10=40)**

Answer any **FOUR** questions.
6. What are the Fugacity?Explain the Fugacity Coefficient.
7. Write a short notes: a) Dependence of pressure (Cp) b) Depandance on Volume (Cv).
8. Expalin the Maxwell Relation and functions
9. Write brief notes Joule Thomson effect and Joule Thomson Coefficient.
10. Explain the partial molar quanties.
11.Wite the phase Diagram of a one and Two Component system.
12 Write a short notes: a)Freezing point b)Melting point c)Triplet point .

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Sl.No.1555 **Course Code: 72817104**

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM

(Deemed to be University)

M.Sc. (CHEMISTRY) DEGREE EXAMINATION – November- 2018

First Semester

DSE – I POLYMER CHEMISTRY

Time: Three hours Maximum: 70 marks

PART – A (5 x 6 = 30)

(Answer ALL Questions)

1. a)Explain the Thermoplastic and thermosetting polymers radiation. (Or)

   b) Write short notes on Elastomers?

2.a) What are the free radical polymers ?Give the examples(Or)

   b)Explain the Kinetic chain length polymer .

3.a)Explain the Glass transition temperature .(or)

   b)Write the Differential Scanning Calorimetry (DSC)?

4.a)Write the preparation and application of polyethylene ?(or)

   b)Write the application and structures of starch ?

5. a) Write short note on inter penetrating network polymers(INP) ?(or)

   b) Explain the biomedical polymers.

SECTION–B **(4X10=40)**

Answer Any Four Questions.

6. Explain the Linear, branched and cross linked polymers.

7. Write a shirt notes a Fibers and resins b) inhibitors retarders .

8. Explain the Factors affecting Glass transition temperature.

(P.T.O)

9. Explain the Co-ordination polymerization (Ziegler - Natta Catalyst).

10.Write a short notes: a) Thermo Gravimetric Analysis b) Osmometry c) Viscosity

11.Write a shirt notes: a) poly vinyl chloride B) poly urethanes c) Exchange resins

12.Write a shirt notes: a) Conducting polymers b) Electroluminescent polymers.

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Sl.No.1555

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Sl.No. 1493 **Course Code: 72817105**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University), SALEM.

M.Sc. (CHEMISTRY) DEGREE EXAMINATION – November 2018

First Semester

DSC – I – CHEMISTRY IN CONTEXT

Time: Three hours Maximum: 70 marks

SECTION-A **(6X05=30)**

Answer ALL the Questions.

1. a)Explain the biological effect of UV radiation (Or)

   b) Write short notes on ozone - oxygen and ozone screen?

2.a) What are the -green house effect ?Give the examples(Or)

   b)Explain the methane green house gases?

3.a)Explain the Solar energy ?(or)

   b) Give the any five application of hazards of radioactivity ?

4.a)Write the preparation and properties of polyethylene polymer ?(or)

   b)Write short note on disposal of plastics ?

5. a) Write short note on fuel cells?(or)

   b) Explain the chlorofluorocarbons

SECTION–B **(4X10=40)**

Answer Any FOUR Questions.

6. Explain the ozone formation and distribution in the atmosphere.

7. Write a shirt notes a) vibrating molecules and the green house effect b) climate modeling?

8. Write a shirt notes a) photovoltaic's b) – batteries

(P.T.O)

9. Explain the world of plastics polymers ?

10.Write a short notes') Antarctic ozone hole b) - burning of hydrocarbons

11.Write a shirt notes: a) Nuclear fission B) Nuclear fusion

12.Write a shirt note a)paper plastics b) Hydrogen economy

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Sl.No. 1493

Sl.No.18250 **Course Code: 72817102**

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)

M.Sc. (CHEMISTRY) DEGREE EXAMINATION – November - 2018
Third Semester

DSEC – III – GREEN CHEMISTRY

Time: Three hours Maximum: 70 marks

PART – A (5 x 6 = 30)
(Answer ALL Questions)

1. a) "Green chemistry is sustainable chemistry". Explain the statement..(or) **(5X6=30)**
   b) Write twelve principles of green chemistry with explanation.
2. a) Write the applications of microwave in organic synthesis.(or)
   b) Explain Neat reaction and solid support reaction with suitable examples.
3. a) Explain the synthesis and physical properties of ionic liquids. (or)
   b) Explain the synthesis and applications of Wittig and Knoevengal condensations reactions.
4. a) What are the uses of Biocatalysts in green chemistry . (or)
   b) How fine chemicals are fermented using microbes.
5. a) Explain how Dimethyl carbonate is used as methylating agent in alternative photochemical reaction. (or)
   b) Write the design and applications of green oxidants.

SECTION- B

(4X10=40)

ANSWER ANY FOUR QUESTIONS

6. Write the tools of green chemistry with suitable examples.
7. Explain the applications in synthetic organic transformation using microwaves under solvent-free conditions.
8. (a) Explain Phase transfer catalyst reaction with their uses.
   (b) Explain Friedel-craft reactions and Diels-Alder reactions.
9. Explain the biotransformations mediated synthesis of vitamins and amino acids .
10. Explain oxidations-reductions and multi-component reactions.
11. Explain how super critical carbon dioxide is used for synthetic chemistry.
12. Explain the Bio-catalyst mediated Baeyer-Villiger reactions – Microbial polyester synthesis.

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