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**DHANALAKSHMI SRINIVASAN COLLEGE
OF ARTS & SCIENCE FOR WOMEN
(AUTONOMOUS)**

(For Candidates admitted from 2020-2021 onwards)



PG DEGREE EXAMINATIONS APRIL - 2021

M.Sc., - CHEMISTRY

SUPRAMOLECULAR CHEMISTRY

Time: 3 Hrs

Max.Marks: 75

PART - A

CHOOSE THE CORRECT ANSWER

(10X1=10)

- Which of the following type of interaction is not important in supramolecular chemistry
a) Hydrogen Bonding b) Ion-dipole c) dipole-dipole d) Ionic bonding
- Using the appropriate supramolecular host, it is possible to bind which of these guests?
a) Anions b) Cations c) Neutral species d) All of these
- MOFs are a promising class of crystalline and highly porous materials built by strong bonds between organic struts and inorganic clusters, also known as
a) secondary building units b) primary building units c) catalysis d) topicity
- _____ about 10,000 times thinner than human hair
a) Nano rods b) molecular ladder c) zeolite d) Molecular sieves
- Amphiphilic Coreceptors having both hydrophilic and hydrophobic components with them. It is also called as
a) Surfactants b) Hetraphane c) Cluster Cryptates d) chiral coreceptors
- In supramolecular dynamics, the stability of the system is _____ during thus _____ the temperature
a) decreased; increasing b) decreased; decreasing
c) increased; increasing d) none of the above
- Expansion of ATP is
a) Adenosine triphosphate b) Adenosine tetraphosphate
c) Adenosine triphosphite d) Adenosine tetraphosphite
- The first dendrimer was proposed by.
a) Gauthier b) Webster c) Miller d) Tomalia
- Luminescence involving direct radiative decay, in which the electron returns immediately to the ground state from a singlet excited state, is termed
a) sensitization b) chemiluminescence c) fluorescence d) phosphorescence

10. A light conversion molecular device may be realized by an _____ process
- Absorption-Energy-Transfer Emission (A-ET-E)
 - Adsorption-Energy-Transfer Emission (A-ET-E)
 - Emission-Energy-Transfer Absorption (E-ET-A)
 - Emission-Energy-Transfer Emission (E-ET-E)

PART- B

ANSWER ALL THE QUESTIONS

(5X7=35)

11. a) Explain the concept of different types of synthons based on non-covalent interactions.

(OR)

- b) Account on polymorphism and pseudopolymorphism.

12. a) Explain the organometallic systems.

(OR)

- b) Write the role of organic light emitting diode.

13. a) Comment on dinuclear and polynuclear metal ion cryptates.

(OR)

- b) Write an explanatory note on supramolecular dynamics.

14. a) What is catalysis? Explain the catalysis with cyclophane type receptors.

(OR)

- b) Discuss the biomolecular and abiotic catalysis.

15. a) Write a note on molecular and supramolecular photonic devices.

(OR)

- b) Bring out the role of supramolecular chemistry in the development of nanotechnology.

PART-C

ANSWER ANY THREE QUESTIONS

(3X10=30)

16. Describe the bonded and non-bonded interactions in supramolecular chemistry.
17. Elaborate the designing of molecular rods, triangles and ladders with appropriate examples.
18. Explain the following:
- Heterotopic Coreceptors
 - Amphiphilic Coreceptors
 - Cyclophane receptors
19. Elaborate the supramolecular chemistry in solutions.
20. Account on the following:
- Molecular and supramolecular electronic devices
 - Molecular and supramolecular ionic devices