

Reg. No

Name

18U648

B Sc DEGREE END SEMESTER EXAMINATION - MARCH 2018**SEMESTER 6 : CHEMISTRY****COURSE : 15U6CHEEL1 ; ADVANCES IN CHEMISTRY***(For Regular - 2015 admission)*

Time : Three Hours

Max. Marks: 75

Section A**Answer any 10 (1 marks each)**

1. What is FGI
2. Toxic gas evolved when plastic is burnt
3. Give an example of a biocatalyst
4. Write any two disadvantages when metals are used as biomaterials.
5. Polymers prepared with the incorporation of cyclotriphosphazene rings are used as High temperature and fire resistant polymers. Why?
6. The density functional theory method replaced the many-body electronic wave function of a molecule with a functional of -----
7. Gaussian is an example of ----- software
8. ----- is also known as an internal coordinate representation.
9. Give any two reactions which are catalysed by enzymes.
10. What is ultramarine?
11. What is micro emulsion method?
12. _____ is known as carborundum
13. Give any two examples for nano metal oxides which has been synthesised by mechano chemical method.
14. What is the role of surfactant in the chemical precipitation method for the synthesis of nanomaterials?

(1 x 10 = 10)**Section B****Answer any 10 (2 marks each)**

15. Name any two green antibacterial agents.
16. What do you mean by host guest chemistry?
17. What are the forces responsible for the spatial organization in supramolecular chemistry?
18. What is HFC-134a? What is its use?
19. Suggest any two green energy sources. Why they are green?
20. What do you mean by single point energy calculation?
21. Distinguish between global minimum and local minimum in a potential energy surface
22. What is the procedure of Hartree Fock method?
23. Explain alpha helix and beta pleated structure of proteins.
24. What are zeolites? How it is suitable for water softening?
25. What is molar absorbance of a solution?

26. State and explain Beer-Lamberts Law.
27. What is the difference between Top Down and Bottom Up Processes involved in the synthesis of nanomaterials?
28. Explain in detail about the sol-gel method for the synthesis of nanomaterials.

(2 x 10 = 20)

Section C

Answer any 5 (5 marks each)

29. Explain the importance of molecular recognition in proteins
30. Explain in detail about High temperature and fire-resistant polymers.
31. Give the retrosynthetic analysis of acetophenone
32. Explain minimal basis sets with examples. Distinguish between Slater type and Gaussian type basis sets.
33. Describe the molecular mechanics method in computational chemistry.
34. What do you mean by geometry optimization. What is the procedure in geometry optimization. How geometry optimization related to PES of a chemical process.
35. Discuss in detail about the informations obtained from the titration curves of aminoacids.
36. What are glasses? How it is manufactured? Give the different types of glasses.

(5 x 5 = 25)

Section D

Answer any 2 (10 marks each)

37. Explain any 10 principles of green chemistry with examples
38. Explain in detail about a) Bioenergetics, b) Enzyme catalysis and c) Biological significance of pH. (4 + 3 + 3)
39. a) Explain the principle and instrumental method of DTA, b) Explain the thermogram of Calcium oxalate. (5+5)
40. Discuss in detail about the properties and applications of a) fullerenes, b) quantum dots and c) carbon nanotubes. (4 + 3 + 3)

(10 x 2 = 20)