

16U613

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Name:

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019

(Regular/Supplementary/Improvement)

(CUCBCSS - UG)

CC15U CHE6 B12 - ADVANCED AND APPLIED CHEMISTRY

Chemistry - Core Course

(2015 Admission onwards)

Time: Three Hours

Maximum: 80 Marks

Section A

Answer *all* questions. Each question carries 1 mark.

1. ----- is an example of 0D (zero dimensional) nanoparticle.
2. Carbon nano-tubes contain carbon atoms in their ----- hybridization state.
3. Give an example of a green solvent.
4. ----- is an example of a programming language.
5. Draw the structure of monomeric unit of Teflon.
6. ----- is an example of a phosphatic fertilizer.
7. In Travancore Titanium Products Ltd. titanium dioxide pigment is manufactured from ----- ore.
8. ----- is an example of a pharmacophore.
9. ----- is the main ingredient of an antidandruff shampoo.
10. Draw the structure of Ajinomoto.

(10 × 1 = 10 Marks)

Section B

Answer any *ten* questions. Each question carries 2 marks.

11. Give any two applications of nano-materials in medicinal field.
12. Explain briefly the significance of surface area to volume ratio of nano particles.
13. Explain how the microwave assisted Diel-Alder reaction is a green synthetic method.
14. What is meant by operating systems? Give one example.
15. Discuss the polymerization reaction in the formation of Nylon 66.
16. What is meant by Rocket propellant? Give any two examples.
17. Explain the chemistry behind the preparation of aspirin.
18. What is meant by cationic detergents? Give an example.
19. Explain any two health effects of chemical ingredient used in hair dyes.
20. Explain briefly the application of combinatorial synthesis in drug discovery.

21. Give any two advantages of Ziegler Natta polymerization.
22. Explain any two harmful effects of cosmetics.

(10 × 2 = 20 Marks)

Section C

Answer any *five* questions. Each question carries 6 marks.

23. Discuss the significance and uses of any three metal oxide nanoparticles.
24. In the light of supramolecular chemistry explain the primary and secondary structure of DNA.
25. Compare molecular mechanics molecular orbital methods used in computational analysis in chemistry.
26. What is meant by synthetic rubbers? Explain the monomers and the polymerization reaction for the preparation of any three synthetic rubbers.
27. What are dyes? Explain their uses, theories of colour and chemical constitution.
28. In the light of Endosulfan disaster in Kerala, discuss the harmful effects of pesticides.
29. Define and explain the health effects of a) Fast foods b) Instant foods and c) Junk foods
30. Explain raw materials, chemistry involved in the preparation and uses of ammonium sulphate in fertilizers and chemicals in Travancore Ltd.

(5 × 6 = 30 Marks)

Section D

Answer any *two* questions. Each question carries 10 marks.

31. Discuss the method of manufacture, composition and chemistry of setting process of cement.
32. Explain with examples about a) Analgesics b) Antacids c) Antihistamines d) Rodenticides and e) Fungicides
33. a) Discuss with examples any two food preservatives and artificial sweeteners.
b) Discuss the significance of biodegradable polymers. Give structure and polymerization of the preparation of any two biodegradable polymers.
34. Explain any five principles of green chemistry with explanations.

(2 × 10 = 20 Marks)
