15U613 (Pages: 2) Name: ……..…….

Reg. No.…….……

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2018

(CUCBCSS - UG)

CC15U CHE6 B12 - ADVANCED AND APPLIED CHEMISTRY

Chemistry - Core Course

(2015 Admission)

Time: Three Hours Maximum: 80 Marks

Section A

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

1. Give an example for nature's nano-dimensional system.
2. What is the colour of aqueous Gold nanoparticle solution?
3. Write an example for Green Solvent.
4. Give any one example of computer programming languages.
5. What is the structural formula of Polyacrylonitrile (PAN)?
6. Where does Travancore Titanium Products Ltd situated*?*
7. What is KMML stand for?
8. Octane ratings are not indicators of the energy content of fuels. Is it true or false?
9. What is the main ingredient of hair dye?
10. Draw the structure of Ajinomoto.

(10 x 1 = 10 Marks)

Section B

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

11. What is the peculiarity of Lycurgus Cup?
12. Give any 2 applications of nanomaterials in the field of catalysis.
13. What are the basic constituents of proteins and DNA?
14. Give any one application of PMMA & Neoprene.
15. What are Plastic identification codes?
16. What are the ingredients of transparent toothpaste?
17. What is CNG?
18. Write down a chemical reaction having the *atom economy* concept.
19. What are Rocket propellants?
20. Give two examples of antidepressants.
21. What are UV absorbers?
22. How will you identify food adulterants in chilly powder?

(10 x 2 = 20 Marks)

Section C

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

23. What is the significance of *surface area to volume ratio* of nanomaterials?
24. Describe any one method for the synthesis of silver nanoparticles.
25. Identify the basic principles of combinatorial synthesis. How combinatorial synthesis is useful in drug discovery process?
26. Write a note on molecular recognition and host-guest interactions.
27. What are the monomers involved in the formation of Nylon 66, Bakelite, Terylene, Lexan and Nomex?
28. What are the chemical steps involved *titanium dioxide* pigment production?
29. How will you synthesize paracetamol from phenol?
30. Write a note on common permitted and non-permitted food colours.

(5 x 6 = 30 Marks)

Section D

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

31. Write a note on (i) Fullerenes (ii) Carbon Nanotubes (iii) Applications of Nano materials.
32. Comment on the classification and manufacturing of (i) Cement & (ii) Glass.
33. Write an essay on Pesticides with emphasis on classification, examples, structure and its harmful effects.
34. Write an essay on the various types of methods of preservation and harmful effects of modern food habits.

(2 x 10 = 20 Marks)

****