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UNDERGRADUATE (CBCS) EXAMINATION, OCTOBER 2019

Fifth Semester

(Offered by the Board of Studies in Chemistry)

Open Course - CH5OPT02 - NANOSCIENCE AND NANOTECHNOLOGY

2017 Admission Onwards

05FDB70B

Maximum Marks: 80   Time: 3 Hours

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1.   Give two examples for 0D nanomaterials

2.   What is top-down synthesisin nanoscience?

3.   State Moore's law.

4.   Write the significance of nano policies.

5.   What is a patent?

6.   Suggest a green method for the synthesis of nano materials.

7.   What is matter wave concept of radiation?

8.   What are Chromophores? Give one example.

9.   What is electron microscopy?

10. What is SPL? Mention any one use.

11. What is a smart dust?

12. Give any two destructive applications of nanotechnology

                                                                                    (10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. What are quantum dots? Mention any two applications?

14. What are endohedral fullerenes? Give examples.

15. Comment on the ethical properties of nanoscience.

16. What is electromagnetic radiation? Explain the terms wavelength, frequency and wavenumber.

17. What are the impacts of electromagnetic radiation on matter?

18. Explain the principle of XPES. How it can be used for the nanomaterial characterisation?

19. Differentiate b/w SEM & TEM

20. Discuss the possible applications of nanoparticles in Biology

21. Write a short note on immuno targeted nano drug delivery systems

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. What are carbon nanotubes? Discuss its synthesis and properties.

23. Explain the energy challenges and environmental impacts of nanotechnology.

24. What is spectroscopy? Describe the use of UV - Visible spectroscopy in the study of nanosystems.

25. Describe the applications of nanomaterials in medical diagnosis and therapy

(2×15=30)