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QP CODE: 22101798

Reg No :

Name :

**UNDER GRADUATE (CBCS) SPECIAL SUPPLEMENTARY EXAMINATIONS,
MAY 2022**

Fifth Semester

(Offered by the Board of Studies in Chemistry)

OPEN COURSE - CH5OPT02 - NANOSCIENCE AND NANOTECHNOLOGY

2019 Admission Only

71130DDD

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

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

1. Define nanoscale.
2. Give two examples of nanomaterials which are synthesised by top-down path.
3. Why fullerenes are considered as nanomaterials?
4. What are the potential risks of nanomaterials?
5. What are the goals of green nanotechnology?
6. What is the relevance of nanoethics?
7. Derive de_broglie equation for matter waves.
8. What is the principle of UV-Visibile spectroscopy?
9. What is TEM? Give any one use.
10. What are SIMS? Mention any one use.
11. What are antibacterial applications of nanomaterials?
12. What is a smart dust?

(10×2=20)





Part B

Answer any **six** questions.

Each question carries **5** marks.

13. What are quantum dots? Mention any two applications.
14. Explain the electrical and mechanical properties of carbon nanotubes.
15. Discuss the importance of intellectual property rights in nanotechnology.
16. What are the properties of Electromagnetic radiations?
17. Discuss the interaction between matter and radiation.
18. Differentiate between chromophore and auxochrome.
19. Explain scanning electron microscopy.
20. What are the applications of Nanobiology?
21. What are the different protocols in nanomedicine?

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.

22. Write an essay on the Feymann's hypothesis and the important milestones in the development of nanotechnology.
23. Explain national and international nano policies and regulations. Write a note on the regulatory bodies involved.
24. Discuss the applications of photoelectron spectroscopy in the characterization of nanomaterials. How does UPES differ from XPES?
25. Explain the following.
(a) Nanomedicine and its significance (b) Nanosensors © Destructive applications of nanotechnology.

(2×15=30)

