QP CODE: 20100049

Reg No   :   ....

Name   :   ....

UNDERGRADUATE (CBCS) EXAMINATION, FEBRUARY 2020

Fifth Semester

(Offered by the Board of Studies in Chemistry)

Open Course - CH5OPT02 - NANOSCIENCE AND NANOTECHNOLOGY

2017 Admission Onwards

2B77393D

Time: 3 Hours

Maximum Marks :80

Part A

*Answer any **ten** questions.*

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

1. What is colloidal gold?

2. How many hexagonal and pentagonal faces are in fullerene C60?

3. Distinguish between SWNTs and MWNTs.

4. Name any two existing laws related to nanotechnology.

5. What are the potential risks of nanomaterials?

6. What is meant by nanoeconomy?

7. Give the mathematical form of de Broglie relation and explain the terms.

8. Give two examples for chromophore.

9. What is XPES? Mention any one use.

10. What is Bio-nano fusion Science? What are its advantages?

11. What makes the nanomaterials suitable for oral administration?

12. Which properties of nanomaterials are utilized in designing nanosensors?

$(10\times2=20)$

Part B

*Answer any **six** questions.*

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

13. Briefly discuss the top-down synthesis of nanomaterials giving examples.

14. Briefly explain various types of nanomaterials.

15. Explain the term intellectual property. Write the significance of Intellectual Property Rights (IPR).

16. Describe the economical and ethical implications of nanotechnology.

17. Explain the matter –wave concept of radiation.

18. Brief the technique SEM used for nanomaterial characterisation.

19. Explain TEM as a tool to characterise nanomaterials.

20. How can SPL be used in the study of nanoparticles?

21. Explain the relevance of nanotechnology in medical diagnosis and treatment.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Discuss on (1) Feynman's hypothesis (2) Moore's law.

23. Write a short note on electromagnetic radiation and explain its components.

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

25. Explain the following. (a) Nanomedicine and its significance (b) Nanosensors (c) Destructive applications of nanotechnology.

(2×15=30)