11PPHNT2BN1- PPH/NE/2BN1

M.SC. DEGREE EXAMINATION,APRIL 2018
I YEAR II SEMESTER
Non Major Elective-I - BASICS OF NANO SCIENCE AND TECHNOLOGY

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20 marks)$

Answer any **TEN** questions

1. State the reason for the size dependent property of nano structures.
2. What are one, two and three dimensional nanomaterials?
3. What is a nanocomb?
4. Distinguish between nano rod and nano wire.
5. Name any two tools to identify nanostructures.
6. State the principle of nano lithography
7. What is known as top down approach in the synthesis of nano materials?
8. How nano scale growth is achieved?
9. What do you mean by nano biology?
10. What are the applications of nano biology?
11. What is a nano skin?
12. How do you classify ceramic materials?

Section B $(5 \times 5 = 25 marks)$

Answer any **FIVE** questions

13. Write a brief note on polymers.
14. Discuss briefly the mass production of quantum dots.
15. Explain about the dip pen lithography process. Name a few applications of dip pen lithography.

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16. Explain the sol-gel method for the preparation of nano materials.
17. Discuss about immuno fluorescent bio marker imaging.
18. Write a note on ceramics.
19. What is the basic principle of atomic force microscope (AFM)? Explain the working of AFM.

Section C $(3 \times 10 = 30 marks)$

Answer any **THREE** questions

20. Write an essay about nano biosystems.
21. Write a note on (i) nano tubes, (ii) nano clock and (iii) nano laser.
22. With neat diagram explain the principle and working of Trasmission Electron Microscope (TEM).
23. Discuss with necessary explanation about the top down and bottom up approaches of nano rematerial preparations.
24. Explain in detail with suitable example about the targeted drug delivery.