Register Number……

B.TECH. DEGREE EXAMINATIONS: APRIL/MAY 2012

Sixth Semester

BIO TECHNOLOGY

BTY204: Nanobiotechnology

Time: Three Hours **Maximum Marks: 100**

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. The top down approach refers to
   (a) modeling and etching (b)leaching (c) sticking (d) purification
2. An example of a self assembly system
   (a) nano bricks (b) lipid bilayer (c) precipitates (d) pick and place machine
3. The use of gold in medicine is referred to as
   (a) chemotherapy (b) Chrysotherapy
   (c) non invasive treatment (d) phytophysical therapy
4. Coloured quantum dots are used for
   (a) fast DNA testing (b) rapid DNA splicing
   (c) isolation of DNA (d) column chromatography
5. Name a lipid drug delivery nano carriers
   (a) carbon nanotubes (b) micelles (c) antibiotics (d) lysosomes
6. Self assembled DNA structures can be visualized by
   (a) X-ray crystallography (b) atomic force microscopy
   (c) NMR (d) atomic absorption spectroscopy
7. Magnetosome chairs are membranous
   (a) prokaryotic organelles (b) eukaryotic organelles (c) liposomes (d) fungi
8. Bacteriophodopsin is a
   (a) globular protein (b) integral membrane protein
   (c) immunoglobulin (d) transmemberane protein
9. A Fick's diffusion for a polymeric drug is given by
   (a) J= -D. ∇C (b) J= D. ∇C (c) E=vA (d) J$\leq$ -D. ∇C
10. Rate that drug enter tissue depends on
    (a) pH (b) blood flow to that area (c) concentration differences (d) diffusion

PART B (10x2=20 Marks)

11. In nanotechnology, define top down and bottom up approaches
12. Highlight the important application of nano devices
13. What is ion implantation of silver nano particles?
14. Brief the chemical property of fullene
15. Define the melting temperature of DNA and notate the Chargaff's rule
16. What is a Nanopore? List 2 types of Nanopores
17. Brief about PHA
18. What is Cyanophycin?
19. List any four application of Microarray.
20. List any 4 routes for drug administration

PART C (5x14=70 Marks)

21. a) (i) What are microsystems and how are they classified? (3)

(ii) Name any three nano devices and explain the synthesis of producing single wall carbon nano tubes. (11)

(OR)

b) (i) What is molecular self assembly fabrication and give an account of peptide self assembling system (8)

(ii) Give a brief account on photolithography and highlight its applications. (6)

22. a) What is colloidal gold? Give an account on the synthesis of gold nanoparticles.

(OR)

b) Give an account on synthesis of silver nanoparticles and list a few application.

23. a) (i) Explain the central dogma of molecular biology. (8)

(ii) Explain in brief any 6 routes of drug administration . (6)

(OR)

b**)** (i) Give an account of peptide nanoparticles in drug delivery. (8)

(ii) Brief account of (a)PEGylation (b)Phosphorylation (c)Name a Biopolymer. (6)

24. a) Explain any 7 important industrial application of microorganism in nano technology.

(OR)

b) Give an account on Magnetosome and Bacteriophages.

25. a) Write about protein interaction and protein targeting.

(OR)

b) Describe in detail about micelles for drug delivery and microarray with neat sketches.

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