

48/49
A5/A6

SEAT No. _____

No. of Printed Pages : 2

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SARDAR PATEL UNIVERSITY
M. Sc. Integrated Biotechnology (Sem-X) Examination
Saturday, 23/03/2019; Time-10:00 AM to 1:00 PM
SUBJECT CODE: PS10CIGGB3/ PS10CIGTB3
SUBJECT TITLE: Nanobiotechnology and Application

Maximum Marks:70

Note: (1) All questions are compulsory.

(2) Figure to right indicates total marks of question.

(08)

Q-1

Multiple Choice Questions

1. Which of the following is used as molecular computing?
(a) Nanowires (b) Nanodots
(c) Nanotubes (d) All of the above
2. Which of the following are semiconductor nanoparticles that glow a particular color after being illuminated by light?
(a) Quantum wells (b) Quantum dots
(c) Quantum wire (d) Both a) and b)
3. Synthesis of nanomaterial is classified as:
(a) Bottom-up (b) Top Down
(c) Physical (d) None
4. SEM uses:
(a) Glass lenses (b) Light
(c) Beam of electron (d) None
5. Which biomolecule can feasibly be turned in nanohinge structure?
(a) Protein (b) Lipid
(c) DNA (d) Enzyme
6. Which group is utilized to synthesis lipid monolayer surfaces?
(a) Acetyl (b) Acyl
(c) Hydrogen (d) Thiol
7. DNA detection through the _____ by using the oligonucleotide functionalized gold Nano crystals is developed.
(a) Colorimetric (b) Diathermy
(c) Electro therapy (d) Treatment tables
8. Which type of interaction is responsible for self assembly of DNA double helix?
(a) Van der walls force (b) Ionic interaction
(c) Hydrogen interaction (d) Covalent interaction

(14)

Q-2

Short Questions (Attempt any 7)

1. What is Self-assembly?
2. Discuss conductivity property of nanoparticles.
3. Give basic principle and significance of TEM.
4. Discuss types of carbon nanotubes.
5. Discuss different nanostructures synthesized from DNA.
6. Explain basic characteristics of Biosensors.
7. How nano-biotechnology improves drug delivery?
8. Discuss roles of self-assembly and self-organization.
9. Which are the different interactions responsible for stability at molecular level?

- Q-3 (a) Describe Top down and bottom up approach for building nanoparticles. (06)
(b) Write a note on nanowires and quantum wells. (06)
OR
(b) Critically evaluate the Self-assembly and self-organization (06)
- Q-4 (a) Explain sol-gel synthesis method of nanoparticle synthesis in detail. (06)
(b) Elaborate on quantum dot in detail. (06)
OR
(b) Give the basic principle and application of SEM. (06)
- Q-5 (a) Describe ion channel based biosensor in detail (06)
(b) Explain drug delivery by nanomaterials. (06)
OR
(b) What is drug delivery system with respect to Nanotechnology? Discuss advantages and disadvantages of oral drug delivery system. (06)
- Q-6 (a) Explain self assembly and self organization in detail. (06)
(b) Write a note on protein folding. (06)
OR
(b) What are the biomaterials? Explain properties of biomaterials for their various applications in implants and prosthesis. (06)

