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18NT743

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022 Nanotechnology in Biomedical Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Elucidate Protein and Glyco - nanotechnology. (10 Marks)
b. Explain the synthesis of nanomaterials by Physical method. (10 Marks)

OR

- 2 a. Explain the synthesis of nanomaterials by Biological method. (10 Marks)
b. Explain in detail about CNT and any two biotechnology applications. (10 Marks)

Module-2

- 3 a. Describe about Optical tweezers. (10 Marks)
b. Explain Nano Robotics. (10 Marks)

OR

- 4 a. Write a note on Nanoshell for fighting tumor. (10 Marks)
b. With example, explain how nanoparticles are used in Chemotherapy and Immunotherapy. (10 Marks)

Module-3

- 5 a. Explain about diagnostic Biosensor. (10 Marks)
b. Describe the role of nanoparticles in Magnetic Resonance Imaging. (10 Marks)

OR

- 6 a. Give an account on functionalized metallic nanoparticles and their applications in Colorimetric sensing and dip stick tests. (10 Marks)
b. Write a note on Optical Nanoparticle sensors for Intra cellular imaging. (10 Marks)

Module-4

- 7 a. Describe the role of nanomaterials in dentistry. (10 Marks)
b. Explain Implantable materials for Orthopedic. (10 Marks)

OR

- 8 a. Discuss about Nanomaterials in Bone substitutes. (10 Marks)
b. Write a short note on Active Implantable devices and bionics. (10 Marks)

Module-5

- 9 a. Explain the role of Liposomes in nanoparticulate drug delivery system. (10 Marks)
b. Explain Targeted drug delivery and mechanism of drug targeting. (10 Marks)

OR

- 10 a. Explain the role of nanoparticles in sustained and targeted drug delivery. (10 Marks)
b. Write a note on Targeted drug delivery using Dendrimers. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.