

M. Sc. (Medical Biotechnology) Sem-IV (Choice Based Credit System) :

SUMMER - 2019

SUBJECT : NANOTECHNOLOGY IN MEDICINE

Day : Saturday
Date : 13/04/2019

Time : 10.00 AM TO 01.00 PM
Max. Marks : 60

S-2019-1513

N. B. :

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Answer **ANY TWO** questions from Section – I and **ANY TWO** from Section – II from the remaining questions.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SAME** answer books.
- 4) Draw neat and labelled diagram **WHEREVER** necessary.

SECTION - I

- Q.1** Attempt **ANY FIVE** of the following: (10)
- a) What are core-shell nanoparticles?
 - b) Write two applications of quantum dots.
 - c) What are carbon nanotubes? Write two applications of carbon nanotubes.
 - d) How reducing the size of material to nano range increases its reactivity?
 - e) Write two applications of nanocomposites?
 - f) What is microarray?
- Q.2** Answer the following: (10)
- a) What is mean by active targeting? Explain one method of active targeting.
 - b) Explain the concept of personalized medicine.
- Q.3** Write short notes on **ANY TWO** of the following: (10)
- a) Anti-AIDS drugs
 - b) Liposomes
 - c) Nanomedicine
- Q.4** Attempt the following: (10)
- a) Explain the use of magnetic nanoparticles in site directed drug delivery.
 - b) Explain the concept of theranostics.

SECTION - II

- Q.5** Attempt **ANY FIVE** of the following: (10)
- a) What is nanomaterial characterization? Explain X-ray diffraction analysis of nanoparticles.
 - b) Explain charge distribution analysis.
- Q.6** Write short notes on **ANY TWO** of the following: (10)
- a) UV-Vis spectoroscropy
 - b) Particle size analysis
 - c) Photoluminescence spectroscopy
- Q.7** Answer the following: (10)
- a) Explain the concept of *lab on a chip*.
 - b) Explain gene therapy.
- Q.8** Attempt the following: (10)
- a) Explain the function and applications of optical biosensor.
 - b) Explain the principle and use of electrochemical biosensor.

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