

2017

M. Phil.

2nd Semester Examination

LIFE SCIENCE

PAPER — LSC-1210

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Nano-Biotechnology)

Answer all questions.

Group - A

1. Answer any *four* questions from the following : 4×2
- (a) What are the main categories of nanomaterials ?
 - (b) What do you mean by 'top down approach' ?
 - (c) What is nanocrystallite ?
 - (d) Give some examples of linear nanomotors.

(Turn Over)

- (e) What do you mean by polycrystallinity of NZCs ?
- (f) Write down basic principle of NMR ?

Group - B

2. Answer any *four* questions : 4×4
- (a) Write some applications of nano-biotechnology. 4
- (b) Transmission electron microscopy as a basic tool in nanobiotechnology — Explain. 4
- (c) Give a brief note on 'quantum confinement' of nanostructures. 4
- (d) Discuss the chemical and electrical properties of nanomaterials. 4
- (e) What are the key features of a sequence of DNA within the human genome that suggest that it is a protein coding region ? 4
- (f) How can you differentiate between SUV and MUV ?

Group - C

3. Answer any *two* questions : 2×8
- (a) Why ATP synthesis is a true nanorotary motor ? Write the structure and function of Kinesin linear motor. 4+(2+2)
- (b) Differentiate 'structural DNA nanotechnology' from 'Dynamic nanotechnology'. State different 'DNA based nanosystem' Mention the advantages of DNA nanotechnology.
- (c) Give an idea regarding nanocapsule. State the significance of biotechnology in respect to control the diseases. 2+4+2
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