

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: MSC/IMSC/PRE-PHD  
BRANCH: ALL

SEMESTER : II/VIII  
SESSION : SP/2023

SUBJECT: BT429 CONCEPTS IN NANOBIO TECHNOLOGY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
- 

			CO	BL
Q.1(a)	Explain the concept of Quantum Confinement and SPR with respect to nanomaterials?	[5]	CO1	L2
Q.1(b)	List the different Top-Down approaches for nanofabrication? Explain any one in detail.	[5]	CO1	L1,L2
Q.2(a)	Classify nanomaterials based on their dimensionality and origin with supporting examples?	[5]	CO1	L2
Q.2(b)	Define Quantum Dots? Describe their method of synthesis, properties and applications?	[5]	CO1	L1,L2
Q.3(a)	Explain the principle and working of UV-Vis Spectroscopy and its application in nanotechnology?	[5]	CO2	L2
Q.3(b)	Differentiate between Scanning Electron Microscopy and Transmission Electron Microscopy with proper illustration?	[5]	CO2	L4
Q.4(a)	Describe the concept of "Information-Driven nanoassembly" with suitable examples?	[5]	CO3	L2
Q.4(b)	Describe the concept of "Machine-Phase Bionanotechnology" with suitable examples?	[5]	CO3	L2
Q.5(a)	Explain the principle of working of a biosensor with schematics and important characteristics?	[5]	CO4	L2
Q.5(b)	Describe the principle, working and applications of carbon nanotube biosensor with example?	[5]	CO4	L2

::::::01/05/2023::::::E