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

CLASS: M.Tech **SEMESTER : II**
BRANCH: BIOTECH **SESSION : SP/2023**

SUBJECT: BE602 ADVANCES IN NANOBIOTECHNOLOGY

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 Surface Plasmon Resonance?	[5]	CO1	L2
Q.1(b)	Discuss the salient properties of Carbon nanotube and its method for fabrication with suitable representation?	[5]	CO1	L2
Q.2(a)	Differentiate between SEM and TEM? Give the principle & schematic of SEM?	[5]	CO2	L4
Q.2(b)	Enlist the different Top-Down approaches for nanofabrication? Explain any one in detail.	[5]	CO2	L1,L2
Q.3(a)	Define nanomotors? Discuss with suitable example about different known biomolecular nanomotors?	[5]	CO3	L1,L2
Q.3(b)	Define S Layers? Illustrate their unique structure, properties and function?	[5]	CO3	L1,L2
Q.4(a)	Differentiate between a biosensor and a nanobiosensor? Illustrate the schematic and principle of working of a biosensor?	[5]	CO4	L4,L2
Q.4(b)	Discuss the principle, working & applications of Carbon nanotube biosensor?	[5]	CO4	L2
Q.5(a)	“Nanotechnology has revolutionized the biomedical field”. Justify with supporting examples?	[5]	CO4	L5
Q.5(b)	Evaluate the nanotoxicological challenges with its impact on health and environment?	[5]	CO4	L4

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