JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2025

Course Code(Credits): 18B1WBT633 (3) Max. Marks: 15

Course Name: Nano-Biotechnology

Course Instructors:Dr. Abhishek Max. Time: 1 Hour

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q.No	Question	CO	Marks
Q1	If you are working in a Nanotechnology laboratory and your supervisor asked you to disinfect the laboratory using commercially available disinfectant. You find the area of laboratory is 7200 m^2 and you have to maintain the thickness of disinfectant layer 0.1nm. How much (in ml) disinfection you required?	CO-1	3
Q2	The bottom-up approach is a simple and effective method for the synthesis of nanomaterials. It refers to the atom-by-atom, molecule-by-molecule, or cluster-by-cluster construction of nanomaterials. Give a detail explanation of bottom up-approach of nanomaterial synthesis, focusing on biphasic synthesis of gold nanoparticles and microwave assisted synthesis of nanomaterial. Additionally, enumerate the benefits of chemical techniques over physical one	CO-2	5
Q3	Nanotechnology represents a burgeoning scientific field that focuses on materials within the nanometer size range. Nanoparticles, categorized as incidental, engineered and naturally occurring nanoparticles (NONPs), constitute a critical aspect of nanotechnology. Incidental nanoparticles are inadvertently generated as byproducts, engineered nanoparticles are synthesized by humans for diverse application. Enlist all the applications of engineered nanoparticles, focusing on medical, agriculture, environmental and industrial applications	CO-1	4
Q4	Write the answer of each of the following question and explain your answer a. Mathematically prove that a nanoparticle's surface area to volume ratio is significantly greater than that of a bulk particle of the same material. [2] b. What is the title of the famous speech of Richard Feynman introducing nanotechnology? [1]	CO-1	3