

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- Feb-2024

Course Code (Credits): 20MSWBT231 (2)

Max. Marks: 15

Course Name: NanoBiotechnology

Course Instructors: Dr.Abhishek

Max. Time: 1 Hour

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

1. Nanoscience and nanotechnology represent an expanding research area, which involves structures, devices, and systems with novel properties and functions due to the arrangement of their atoms on the 1–100 nm scale. Properties of material at this scale are different from their bulk counterpart explain why? How these new properties of material at nanoscale will be useful in different field especially in medical fields explain with suitable example. [4]
2. Lycurgus cup, from the British Museum collection, represents one of the most outstanding achievements in ancient glass industry. It is the oldest famous example of nanotechnology Explain How? [1]
3. Mathematically prove that the surface area to volume ratio of a nanoparticles is much higher than the that of the bulk particle of the same material and also explain the significance of large surface area to volume ratio [3]
4. A student observing binary fission in amoeba using microscope, in his study he used a compound microscope of magnifying power 10 and the size of amoeba under microscope is 20 mm. What would be the size of amoeba in nm and micrometer? [2]
5. Mr Chinmay would like to clean the Nano-biotechnology laboratory area using commercially available cleaning agent. if the area of the laboratory is 7200m^2 and he would like to maintain the thickness of disinfectant 10nm and 1angstrom respectively then how much disinfectant he required (in ml)? [4]
6. What was the title of famous lecture given by physicist Richard Feynman at the annual American Physical Society meeting at Caltech on December 29, 1959. [1]