JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

B.Tech-VI Semester (BT)

COURSE CODE: 18B1WBT633   MAX. MARKS: 15

COURSE NAME: NanoBiotechnology

COURSE CREDITS: 3   MAX. TIME: 1 Hour

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

Q1. Who made the statement, "There is plenty of room at bottom" and what was his big vision for the small world?   [1.5 Marks][CO-1]

Q2. If a solid sphere with radius 1cm is divided into nano-size tiny sphere with 10 nm radius, calculate the surface area to volume ratio R (S/V m-1) for the total material in above two cases. Draw appropriate conclusion about the change in R when bulk material is converted into nanoparticles.   [5 Marks] [CO-2]

Q.3. Explain in detail Physical Vapor Deposition (PVD) and Chemical Vapor Deposition (CVD) methods of nano synthesis of films, coatings and their relative merits and also write down the advantages of chemical synthesis method.   [5 Marks] [CO-2]

Q.4 Explain why the uncertainty principle is significant only for the motion of nanoparticles or subatomic particles but is negligible for the macroscopic particles.   [1.5 Marks] [CO-1]

Q5. Explain how the presence of protective agent such as PVA, PVP or Surfactant with different functional group stabilize particles growth and protect from sedimentation and or agglomeration   [2 Marks][CO-1]