

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2019

B.Tech VIII Semester

COURSE CODE: L-11B1WBT840

MAX. MARKS: 35

COURSE NAME: Nano-Biotechnology

COURSE CREDITS: 3

MAX. TIME: 2 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. XXXXXXXXXXXXXXXXXXXXXXXX

- Q.1a Define chemical shift degeneracy
- Q.1b Write a note on (a) Zeeman effect (b) Boltzmann distribution (1+3+3)
CO-3
- Q.1c Suppose the resonant frequency of the TMS singlet on a 400 MHz NMR spectrometer is exactly 400 MHz. What is the chemical shift in ppm for a signal that has a resonant frequency of 400,000,400 Hz?
- Q.2 a What are the criteria for a compound to absorb IR radiation (2+2)
- Q.2b How many vibrational modes are possible for CO₂? CO-3
- Q.3 a Write a note on (a) backscattered electron (b) Auger electron (c) magnetic lens (d) Bragg's law (6 + 3)
CO-4 & 5
- Q.3b Diagrammatically illustrate the working principle of transmission electron microscope and comment on its applications
- Q.4 a Write a note on monoclonal antibodies in drug targeting.
- Q.4 b Write a note on Active and Passive targeting. (1+3+3)
CO-4
- Q.4 c What are liposomes? Explain about its application in drug delivery system.
- Q.5 Write a note on (a) Jablonski diagram (b) Chemical Vapour Deposition (CVD) (2 +2)
CO-3 & 2
- Q.6 a Write down the third and fourth postulate of quantum mechanics (3 +1)
- Q.6 b Define Heisenberg uncertainty principle CO-1