

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -I EXAMINATIONS-2022

B.Tech-VII Semester (CS/IT/ECE/Civil/BT)

COURSE CODE (CREDITS): 18B1WPH731 (3)

MAX. MARKS: 15

COURSE NAME: Nanotechnology

COURSE INSTRUCTORS: Dr. Ragini Raj Singh

MAX. TIME: 1 Hour

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

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**Q1.** At the nanoscale, the behaviour of the materials changes; how and why does it happen?

[CO:1, 2, Marks: 2]

**Q.2.** Discuss the concept of surface-to-volume ratio at the nanoscale and its consequences on the properties of Nanomaterials. What may be the applications of the nanomaterial possessing this property? [CO:1,2, 4, Marks: 3]

**Q.3.** What are the specific size-dependent properties in various kinds of Nanomaterials? Give some examples to explain this phenomenon.[CO: 1,2 Marks: 3]

**Q.4.** List and discuss the characterization parameters of nanoparticle materials. [CO: 1, 3, Mark: 2]

**Q.5.** What is molecular self-assembly? Why is it considered key to inexpensive nanofabrication, especially on comparing top-down approaches? [CO: 1, 2, Marks: 2]

**Q.6.** What are the different modifications of single-walled carbon nanotubes? Based on these modifications, how the properties got differed. [CO: 1-5, Marks: 3]