

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -I EXAMINATION- FEB-2023

COURSE CODE(CREDITS): 18B11WPH731 (3)

MAX. MARKS: 15

COURSE NAME: NANOTECHNOLOGY

COURSE INSTRUCTORS: DR. RAGINI RAJ SINGH

MAX. TIME: 1 HOUR

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

- Q.1. 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 Marks: 2]
- Q.2. Why the properties of materials when formed at nanoscale changes drastically, what are the basic laws governs these changes? [CO: 1 Marks: 2]
- Q3. What may be the applications of the Nanomaterials when there is large change in surface to volume ratio? [CO: 1, 2, Marks: 2]
- Q.4. Discuss the specific size-dependent properties according to specific Nanomaterials type? Give possible examples in form of applications to explain this phenomenon. [CO: 2 Marks: 2]
- Q.5. Why the bottom up synthesis methods is considered key to inexpensive nanofabrication, especially on comparing top-down approaches? [CO: 2, Marks: 2]
- Q.6. What is molecular self-assembly? Why is it considered key to inexpensive nanofabrication, especially on comparing top-down approaches? [CO: 2, 3 Marks: 2]
- Q.7. What are the different modifications of single-walled carbon nanotubes? Based on these modifications, how the properties got differed. [CO: 3 Marks: 3]