

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B. Tech-IV/VI/VIII Semester (CSE/IT/ECE/CE)

COURSE CODE (CREDITS): 18B11WPH731 (3)

MAX. MARKS: 35

COURSE NAME: Nanotechnology

COURSE INSTRUCTOR: Dr. Ragini Raj Singh

MAX. TIME: 2 Hours

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

- Q.1. a) How does nanosize influence the electron band gap? [2]
b) Explain the effect of size reduction on mechanical properties of nanomaterials. [2]
c) What is the principle of CVD? What are its applications? [2]
d) Discuss the applications of X-ray photoelectron spectroscopy. [2]
e) What do you mean by quantum dots? [2]
- Q.2. a) Discuss the role of quantum mechanics in nanotechnology. [2]
b) Write a note on classification of nanomaterials. [2]
- Q.3. Explain any two growth techniques for nano structures with their relative merits and demerits. [3]
- Q.4. a) What is the purpose of SEM? Explain its principle. [3]
b) Explain the principle of X-Ray diffraction. [3]
- Q.5. a) Do nanomaterials have effect on the human health? Explain. [3]
b) Explain applications of nanotechnology in environment. [3]
- Q.6. a) What is meant by Raman spectroscopy? [3]
c) Explain about nucleation of growth of Nanomaterials and write its significance. [3]