

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION, OCTOBER 2018

Ph.D. (Physics)

Course Code: 13P1WPH112

MAX. MARKS: 25

Course Name: Materials Characterization

Course Credits: 03

MAX. TIME: 1.5 Hr

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

Q.1. Discuss for the TEM

[8]

(i) Diffraction analysis (ii) Compositional Analysis (iii) EELS (iv) HRTEM and STEM

Q.2. For the absorption processes in semiconductors discuss:

[6]

(i) Allowed direct transitions

(ii) Indirect transitions between indirect valleys

Q.3. Derive the relationship between optical constants.

[6]

(i) For index of refraction

(ii) For reflection coefficient

Q.4. What do you understand by selection rules in UV spectroscopy? Explain about the selection rules along with the forbidden transitions.

[5]