

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- Oct 2017

Ph.D.

COURSE CODE: 15P1WPH213

MAX. MARKS:25

COURSE NAME: Semiconducting Luminescent Materials

COURSE CREDITS: 03

MAX. TIME: 1hr 30 Min

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

---

**Q.1. Write Notes on:**

- |   |   |
|---|---|
| (i) Quantum Dots  | 2 |
| (ii) Electronic states in CdSe quantum dots                                       | 2 |
| (iii) Photoluminescence in colloidal nanocrystals                                 | 3 |
| (iv) Quenching by surface states  | 3 |
| (v) Schematic and energy diagram for quantum dots and their core shell structures | 2 |

**Q.2. Discuss the particle in a sphere in detail.** 5

**Q.3. Explain the ligand-nanocrystal binding.** 4

**Q.4. What do you understand by nanocrystal photoluminescence intermittency?** 4