Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14NT3021** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEMICONDUCTOR NANOSTRUCTURE AND NANOPARTICLES** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Analyze various types of optical behavior in nano material and infer the same using matamatical equation? | CO1 | 10 |
| b. | Sketch the hierarchy of electrical behavior of the material and its applications in detail. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Describe different classes of nanomaterials and explain its applications in detail? | CO1 | 10 |
| b. | Define absorption? Demonstrate various absorption process with neat diagram. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Construct electrode position method setup and discuss its operations in detail. | CO2 | 8 |
|  | b. | Point out the advantages of CVD method over other synthesis methods with neat sketch. | CO2 | 12 |
| (OR) | | | | |
| 4. | a. | Define synthesis. | CO2 | 2 |
|  | b. | Describe the synthesis method of Solgel in nano materials and discuss its functions in detail. | CO2 | 18 |
|  |  |  |  |  |
| 5. | a. | Give major types of synthesis methods in Nanosystems. | CO2 | 4 |
|  | b. | Develop the PLD design setup and discuss its operation principle in detail. | CO2 | 16 |
| (OR) | | | | |
| 6. |  | Prepare various steps involved in bottom up process of nanomaterial preparation and explain its process in detail. | CO2 | 20 |
|  |  |  |  |  |
| 7. | a. | List the applications of heat transfer in Nanosystems. | CO3 | 4 |
|  | b. | Analyze the significance of Melting point in nanomaterial. Discuss various material properties based on Density and tensile strength. | CO3 | 16 |
| (OR) | | | | |
| 8. | a. | Design carbon nanotube transistor for 14nm node and discuss its fabrication issues in detail. | CO3 | 16 |
|  | b. | Infer the limiting factors involved in CNT for developing electronic systems. | CO3 | 4 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Develop a GaAs based Blue LED for 455nm wavelength and discuss its applications in detail. | CO3 | 20 |

ALL THE BEST