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 – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **15PH3005** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEMICONDUCTOR PHYSICS** | **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. | Explain the working of Silicon controlled rectifier draw its I-V characteristics. | CO1 | 10 |
| b. | Demonstrate UJT as relaxation oscillator. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Distinguish the transfer characteristics of different Field effect characteristics. | CO1 | 10 |
| b. | With suitable diagrams distinguish the Enhancement MOSFET and the Depletion MOSFET. | CO1 | 10 |
| 3. |  | Apply the Photolithographic technique in fabricating Integrated circuit. | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Draw the schematic for the diffusion chamber of semiconductor processing and explain the processes. | CO1 | 20 |
| 5. | a. | With suitable summing amplifier diagram and virtual ground equivalent circuit, calculate the output voltage of an op-amp for the voltages and resistors as  V1 = 2V, V2 = 4V, V3 = 6V, R1 = 500 kΩ, R2 = 1 MΩ, R3 = 1 MΩ. The voltage shunt feed back resistance Rf = 1 MΩ | CO1 | 10 |
|  | b. | Give the schematic representation of Basic operational amplifier acting as a differentiator. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Explain how op-amp can be modified as monostable multivibrator. | CO1 | 10 |
|  | b. | With the virtual ground equivalent circuit, explain how the op-amp will act as an summing amplifier. | CO1 | 10 |
| 7. |  | Describe the internal architecture of 8085 microprocessor and explain the functional parts of the Execution unit. | CO1 | 20 |
| (OR) | | | | |
| 8. | a. | Explain the different addressing modes of 8085 microprocessor. | CO1 | 10 |
|  | b. | What are status registers and segment registers in 8085? | CO1 | 10 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Demonstrate theDemorgans theorem using logic gates. | CO1 | 10 |
|  | b. | Draw the logic diagram of 2176 EPROM memory and explain the salient features. | CO1 | 10 |

ALL THE BEST