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 :** | **14EE3001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **POWER SEMICONDUCTOR DEVICES** | **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. | Compare and Contrast ideal and practical characteristics of switch. | CO1 | 10 |
| b. | List the different types of power diodes and explain. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Discuss the series and parallel operation of diodes. | CO1 | 10 |
| b. | Briefly explain the control characteristics of power devices. | CO1 | 10 |
| 3. | a. | Illustrate the switching performance of BJT in detail.. | CO1 | 10 |
|  | b. | Compare and Contrast PMOSFET with BJT. | CO1 | 10 |
| (OR) | | | | |
| 4. |  | A bipolar transistor has current gain β=40.The load resistance RC=10 Ω, dc supply voltage VCC=130 V and input voltage to base circuit, VB=10 V. For VCES=1.0 V and VBES=1.5V,calculate:  (i)the value of RB for operation in the saturated state  (ii)the value of RB for an overdrive factor 5  (iii)forced-current gain and  (iv)power loss in the transistor for both parts(i) and (ii) | CO2 | 20 |
| 5. | a. | In detail, explain the constructional details of PMOSFET. | CO2 | 15 |
|  | b. | Compare and Contrast IGBT with PMOSFET. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | In detail, explain the constructional details of IGBT. | CO3 | 15 |
|  | b. | Compare and Contrast IGBT with BJT. | CO3 | 5 |
| 7. | a. | Explain the construction and characteristics of SIT. | CO3 | 10 |
|  | b. | Illustrate the series and parallel operation of thyristor. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Illustrate the switching characteristics of thyristor. | CO3 | 10 |
|  | b. | Briefly , explain the turn on methods of thyristor. | CO3 | 10 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the switching characteristics of GTO. | CO3 | 10 |
|  | b. | Briefly explain the features of TRIAC. | CO3 | 10 |

ALL THE BEST