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



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **17PH2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEMICONDUCTOR PHYSICS – II** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Define minority and majority carriers in a semiconductor. | CO1 | 3 |
| b. | Discuss in detail forward and reverse characteristics of PN diode with neat circuit diagrams. | CO1 | 17 |
| **(OR)** | | | | |
| 2. | a. | What is a rectifier? List the applications of rectifier. | CO2 | 3 |
| b. | Discuss the action of half-wave and full wave rectifier with appropriate circuits. | CO2 | 17 |
|  |  |  |  |  |
| 3. |  | Recall bipolar junction transistor. How are the terminals named? Explain the circuit symbol and operation of different types of BJT. | CO3 | 20 |
| **(OR)** | | | | |
| 4. |  | With the help of neat sketch and characteristic curves, explain the construction and operation of JFET. | CO3 | 20 |
|  |  |  |  |  |
| 5. | a. | Draw an equivalent circuit of UJT. | CO3 | 3 |
| b. | Recite thyristor and review the operation of (i) SCR (ii) DIAC and (iii) TRIAC | CO5 | 17 |
| **(OR)** | | | | |
| 6. | a. | Varactor diode is analogous to a parallel plate capacitor. Justify the statement. | CO2 | 3 |
| b. | Demonstrate the working principle and I-V characteristics of tunnel diode. | CO2 | 17 |
|  |  |  |  |  |
| 7. | a. | Explain with the help of relevant diagrams, the construction of an LED and its working. Also state the applications of LED. | CO4 | 20 |
| **(OR)** | | | | |
| 8. |  | With suitable diagrams paraphrase the principle and operation of different types of liquid crystal display. Specify the advantages and disadvantages of LCD. Report the relative advantages of LCD over LED? | CO4 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Discuss in detail about the following Digital instruments and its applications   1. Digital Multimeter and Voltmeter. 2. Microprocessor. | CO6 | 20 |