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

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**End Semester Examination – Nov/Dec– 2018**

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| **Code :** | **16PH2003** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEMICONDUCTOR PHYSICS II** | **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. | Demonstrate the working of PN junction diodes with neat schematics. | CO1 | 10 |
| b. | Plot the IV characteristics and explain the regions of importance in the forward and reverse bias conditions of PN junction diode. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Differentiate type of junction formation with suitable schematic. | CO1 | 15 |
| b. | Mention the diode parameters that could be calculated from IV characteristics. | CO2 | 5 |
|  |  |  |  |  |
| 3. | a. | Apply the PN junction diodes to form a Half wave rectification of a signal. | CO2 | 10 |
| b. | Analyse the common Emitter configuration of a BJT with IV characteristics. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Mention the salient features of Hall effect in measuring the electrical parameters. | CO1 | 5 |
| b. | Demonstrate the Hall effect experiment and derives the electrical parameters. | CO2 | 15 |
|  |  |  |  |  |
| 5. | a. | Demonstrate the working of JFET with drain source characteristics and transfer characteristics. | CO2 | 14 |
| b. | Design the circuit for voltage variable resister using FET. | CO3 | 6 |
| (OR) | | | | |
| 6. | a. | Demonstrate the working of SCR with equivalent circuit and the forward bias volt amphere characteristics. | CO2 | 15 |
| b. | State the importance of negative resistance region. | CO2 | 5 |
|  |  |  |  |  |
| 7. |  | Experiment with the construction of a UJT and explain the working of it with the equivalent circuit and the plot of IV characteristics. | CO2 | 20 |
| (OR) | | | | |
| 8. | a. | Explain the working of a solar cell with a neat schematic. | CO1 | 15 |
| b. | Compare the hetero junction solar cell with the cascade solar cells based on the working and the efficiency. | CO2 | 5 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Design a block diagram showing the computer controller measurement system. | CO3 | 10 |
| b. | Draw the circuitary for digital measuremets of voltage and currents through multimeters. | CO3 | 10 |