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



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

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| **Code :** | **17PH2002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SEMICONDUCTOR PHYSICS – I** | **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 drift and diffusion current in semiconductor with neat diagram. | CO1 | 14 |
| b. | Design the half wave rectifier circuit using PN diode. | CO1 | 6 |
| **(OR)** | | | | |
| 2. | a. | Explain about undoped and doped semiconductor with its neat diagram. | CO1 | 10 |
| b. | Evaluate the energy band diagram for conductors, semiconductors and insulators with neat diagram. | CO1 | 10 |
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| 3. |  | Derive and prove the condition for the oscillator by Barkhausen criterion principle. | CO2 | 20 |
| **(OR)** | | | | |
| 4. |  | Elaborate the working of various resistive transducers with neat diagram. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Design the digital circuit for the following expression using logical gates.  Y=ABD+BD+AD+AD+BC | CO2 | 12 |
| b. | Illustrate the various digital logic gates and verify with its truth table. | CO2 | 8 |
| **(OR)** | | | | |
| 6. | a. | Discuss in detail about various modulation techniques used for the analog communication. | CO3 | 10 |
| b. | Explain about block diagram of the microcomputer. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Elaborate the optical communication system using fibre optic cable with neat block diagram. | CO3 | 12 |
| b. | Discuss the common base configuration of bipolar junction transistor with neat circuit diagram. | CO2 | 8 |
| **(OR)** | | | | |
| 8. | a. | Discuss in detail the measuring instruments used for the circuit analysis with its block diagram. | CO2 | 15 |
| b. | Define the micro electronic devices and discuss about its downsides. | CO3 | 5 |
|  | | **Compulsory**: |  |  |
| 9. |  | Elaborate in detail the current voltage characteristics of PN junction diode with its circuit diagram. | CO1 | 20 |