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

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

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| **Code :** | **17BM2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MEDICAL ELECTRONICS** | **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. | In common base configurations, current amplification factor is 0.9. If the emitter current is 1 mA, determine the value of base current. | CO2 | 5 |
| b. | A transistor connected in common emitter configurations in which collector supply is 8 volts and the voltage drop across resistance Rc connected in the collector circuit is 0.5 volts. The value of Rc = 800Ω. if α=0.96, Determine (i) Collector emitter voltage, (ii) base current. | CO2 | 10 |
| c. | Explain the formation of potential barrier in a PN junction. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Illustrate in detail on Opto - Coupler & optical methods with medical applications. | CO1 | 10 |
| b. | Explain in detail about the half wave bridge type rectifier with neat sketch. | CO3 | 10 |
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| 3. | a. | Explain the bioelectrical activity of brain and eye with its relevant diagrams. | CO3 | 10 |
| b. | Discuss on the special purpose diode with its applications. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Explain the internal operation of Common base & Common collector configurations. | CO2 | 10 |
| b. | Summarize the concept involved in measuring Bio-impedance with its relevant diagrams. | CO3 | 10 |
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| 5. |  | Explain the construction of depletion & Enhancement type MOSFET with neat sketch. | CO5 | 20 |
| (OR) | | | | |
| 6. | a. | Sketch the JFET with the construction and working principle. | CO6 | 10 |
| b. | Discuss in detail on power MOSFETs with neat diagram. | CO6 | 10 |
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| 7. | a. | Explain in detail on Bio-FET with the types of field effect transistor. | CO5 | 10 |
| b. | Summarize the medical applications of MOSET with its relevant diagram and working principle. | CO5 | 10 |
| (OR) | | | | |  |  |
| 8. | a. | Illustrate the details of Uni-junction transistor with a physical structure and also explain how it is used as an saw tooth generator. | CO4 | 15 |
| b. | Classify the BJT, FET and UJT. | CO2 | 5 |
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|  | | **Compulsory:** |  |  |
| 9. | a. | Discuss in detail about the Colpitts oscillator circuit. | CO4 | 10 |
| b. | Explain the concepts involved in RC phase shift oscillators using op-amp. | CO4 | 10 |