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

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

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| **Code :** | **17BM3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **HUMAN ASSIST 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. | What are the conditions to be satisfied by the H/L System. | CO1 | 10 |
| b. | Discuss the different types of oxygenator with suitable diagram. | CO1 | 10 |
| (OR) | | | | |  |  |  | 10 |
| 2. | a. | Explain the working principle and the various materials used for the manufacturing of artificial heart. | CO2 | 10 |
| b. | Explain the blood handling system with neat diagram. | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | Explain Synchronous counter pulsation in detail. | CO3 | 10 |
| b. | Describe the types of open and closed chest with diagrams. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Describe the prosthetic cardio valves. | CO3 | 10 |
| b. | Describe the biomaterials used for implantable purposes. | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | Discuss in detail about the design of Hemodialysis process with suitable diagram. | CO3 | 10 |
| b. | Describe the monitoring systems of the artificial kidney. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the Wearable Artificial Kidney and its implanting type. | CO4 | 10 |
| b. | Discuss in detail about the membrane and dialysate of the artificial kidney. | CO4 | 10 |
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| 7. | a. | Discuss about the hand and arm replacement prosthetic systems. | CO5 | 10 |
| b. | Describe the following terms (i) Prosthesis (ii) Orthosis | CO5 | 10 |
| (OR) | | | | |
| 8. | a. | Discuss in detail the importance of Rehabilitation medicine and its advocacy. | CO5 | 10 |
| b. | Describe in detail about the haptic devices. | CO5 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss in detail about the Operating Sequence process of Breathing Apparatus with suitable diagram. | CO6 | 10 |
| b. | Describe the construction and functional characteristics of hearing aids. | CO6 | 10 |