MANIPAL INSTITUTE OF TECHNOLOGY
(A constituent unit of MAHE, Manipal 576104)

VI SEMESTER B.Tech.(BME) DEGREE MAKE UP EXAMINATIONS JUNE 2019
SUBJECT: REHABILITATION ENGINEERING (BME 3284)
(REVISED CREDIT SYSTEM)
Open Elective II
Thursday, 20th June 2019: 2 PM to 5PM

TIME: 3 HOURS   **MAX. MARKS: 50**

Instructions to Candidates:
1. **Answer all the questions.**
2. **Draw labeled diagrams wherever necessary.**

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1. Stress the importance of the sequential and synchronous contribution of legs, hip, knee and foot in the completion of a gait cycle? Also say how the disability appear if the proportionality contribution is disrupted?   5+5

2. Ascertain the importance of Brain Computer Interface related rehabilitation process? Illustrate the roll of CNS (Central Nervous System) and PNS (Peripheral Nervous System) superlatively?   5+5

3. Illustrate the different components of neural network, clarify their similarity with natural neuron system counterpart with proper diagrams, and explain how artificial neural network models are effective in estimating the physical disability?   5+5

4. Highlight the characteristics of:-   5+5
   (i) The movement of hip, Knee, Foot,
   (ii) The synchronous sequential and proportionality relationship of human locomotion pertaining to a single gait cycle

5A. Explain the environment and physiology of the generation, propagation, and condition of action potential.   5

5B State and explain the followings with respect to action potentials.   5
   (i) Resting potential
   (ii) Sign of the intracellular fluid at resting state and its reason.

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