Exam Date & Time: 23-May-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.TECH END SEMESTER EXAMINATIONS, MAY 2022
REHABILITATION ENGINEERING [BME 4303]

Marks: 50   **Duration: 180 mins.**

A

Answer all the questions.

Instructions to Candidates:
Answer ALL questions Missing data may be suitably assumed

1)	Explain the various rehabilitation process for physical disability	
A)		(2)
B)	Classify and explain the popular rehabilitation practices.	(3)
C)	Explain the basic structure of a neuron and its working	(5)
2)	Stress the utility and functional significance of sodium potassium pump?	
A)		(3)
B)	State the importance and utility of models in the development of assistive devices	(3)
C)	State the important characteristics of EMG signals	(4)
3)	What is an MMG signal? Explain the characteristics of the same.	
A)		(3)
B)	What are the different types of modeling tools? Briefly explain each of them.	(3)
C)	In detail narrate various signaling process and contribution of CNS and PNS in producing a mechanical movement of muscle cell starting from the neurons of the Brain?	(4)
4)	Graphically indicate the timely relationship between action potential and stimulus.	
		(3)

A)

B)   State the important steps to be followed for developing of assistive devices

(3)

C)   Formulate an algorithm for processing EMG signal for assistive device design purpose

(4)

5)   Compare the functionalities between a natural and artificial neuron

(3)

A)

B)   Describe briefly the various components of artificial neural network with proper block diagram

(3)

C)   Describe the charge distribution of cells with respect to intra cellular fluid and extra cellular fluids with proper figures.

(4)

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