Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.TECH END SEMESTER EXAMINATIONS, MAY- JUNE- 2023

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)		Establish the importance of Assistive devices and its technologies in the process of rehabilitation?	(3)
	A)		
	B)	State how the disability is calculated?	(3)
	C)	Explain how the calculated disability is utilized in the design of assistive devices?	(4)
2)		Stress the utility and functional significance of sodium potassium pump	(3)
	A)		
	B)	State the importance and utility of models in the development of assistive devices	(3)
	C)	State the important characteristics of MMG signals.	(4)
3)		What is an EMG signal? Explain the characteristics of the same.	(4)
	A)		
	B)	What are the different types of modelling tools? Briefly explain each of them.	(3)
	C)	In detail narrate various signalling process and contribution of CNS and PNS in producing a mechanical movement of muscle cell starting from the neurons of the Brain?	(3)
4)		Graphically indicate the timely relationship between action potential and stimulus.	(4)
	A)		
	B)	What are the important steps to be followed for developing of assistive devices? Explain.	(3)
	C)	Formulate an algorithm for processing EMG signal for assistive device design purpose.	(3)
5)		What is scale model? Explain with examples.	(5)
	A)		
	B)	What is a verbal model? Where and how it is used?	(3)
	C)	Discuss the important mathematical models along with their significance?	(2)

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