Reg. No. :

Question Paper Code: 99B17

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Elective

Biomedical Engineering

19UBM917- REHABILITATION ENGINEERING AND ROBOTICS

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1.	Define myoelectric arm.	CO1- U
2.	Write a short notes on rehabilitation of the visual system.	CO1- U
3.	Define postural support device.	CO1- U
4.	Write short notes on truncal and cervical orthoses.	CO1- U
5.	Mention the advantages and disadvantages of manual wheelchairs.	CO1- U
6.	Define the principles of coordination exercises.	CO1- U
7.	"The automation system needs sensors" – justify.	CO3- Ana
8.	Is there any way to implement robotics in medicine? Explain your answer.	CO3- Ana
9.	Is there a need of controller in rehabilitation? Justify.	CO3- Ana
10.	How is robot different from human?	CO2- App

PART – B (5 x 16= 80Marks)

11.	(a)	Define is rehabilitation engineering? Elaborate in detail about the engineering concepts in sensory and motor rehabilitation.	CO1- U	(16)
		Or		
	(b)	Enlighten in detail about the conceptual frameworks.	CO1- U	(16)
12.	(a)	Design an intelligent prosthetic knee with necessary explanation.	CO2- App	(16)
		Or		
	(b)	Summarize on the construction and working of an ankle foot orthoses.	CO2- App	(16)

13. (a) Describe the design process of a wheel chair. Compare between a manual and a powered wheelchair.   CO3-Ana   (16)

<div align="center">Or</div>

   (b) Design a powered wheel chair system and discuss about the components used.   CO3-Ana   (16)

14. (a) Outline the concepts and principles of robotics.   CO1- U   (16)

<div align="center">Or</div>

   (b) Explain the overview of robot subsystems.   CO1- U   (16)

15. (a) Write in detail about the fundamentals of robot technology.   CO1- U   (16)

<div align="center">Or</div>

   (b) Describe in detail about the functions of rehabilitation robotics.   CO1- U   (16)

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