

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI (New) EXAMINATION – WINTER 2019

Subject Code: 2160310

Date: 12/12/2019

Subject Name: Rehabilitation Engineering

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) What are factors to be considered while designing Assistive Technology?	03
	(b) Explain the terms: (1) Functional Electrical Stimulation , (2) Assistive Technology, (3) Terminal Limb, (4) Intercalary Limb	04
	(c) What is Orthoses? Explain its need and types in detail.	07
Q.2	(a) Draw anatomy of bones of upper and lower extremities with proper labeling.	03
	(b) Write manual wheelchair user profile.	04
	(c) Explain in detail components of upper limb prosthesis.	07
	OR	
	(c) Explain in detail prescription and fabrication of prosthesis.	07
Q.3	(a) Briefly describe the principle of retinal implant.	03
	(b) Enlist and explain the general functions of Orthoses.	04
	(c) Explain task specific assistive technologies for blind people.	07
	OR	
Q.3	(a) Briefly describe the principle of cortical implant.	03
	(b) Explain different crutches and walking sticks used as walking aids.	04
	(c) Explain in detail technologies for reading, writing and graphical access for blind people.	07
Q.4	(a) Write the basic principle of hearing aid.	03
	(b) Give classification of amputation types.	04
	(c) Explain in detail safety aspects for wheelchair transportation system.	07
	OR	
Q.4	(a) What are available solutions for reading problem faced by people with low vision?	03
	(b) What are benefits of universal designs?	04
	(c) What are types of deafness? Explain cochlear implant in detail.	07
Q.5	(a) Describe the robotic technology in rehabilitation engineering.	03
	(b) How a wheelchair is tested?	04
	(c) Write powered wheelchair user profile. Explain in detail power and drive system, control system of electric powered wheelchair.	07
	OR	
Q.5	(a) Explain about sensors used in intelligent mobility aids.	03
	(b) Write a note on standards for assistive technology.	04
	(c) Justify the following statement 'Rehabilitation engineers contribute to the design, development, safety, evaluation, and procurement of wheelchair technology.'	07
