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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, April /May 2025

Biomedical Engineering

6th Semester

BM5015 REHABILITATION ENGINEERING

(Regulation2019)

Time:3hrs

Max.Marks: 100

CO1	Understand the key terminologies used by the rehabilitation team
CO2	Devise new concepts for future development and applications
CO3	Design and develop different sensory assist devices, orthotics and prosthetics for rehabilitation applications.
CO4	Understand the need of virtual reality tools for different aids.
CO5	Appreciate the legal aspects for building rehabilitation aids for the needed people

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No	Questions	Marks	CO	BL
1	Differentiate impairment and handicap	2	1	2
2	Brief about the community based rehabilitation program.	2	1	2
3	Give examples for auditory vision substitute.	2	2	2
4	Distinguish between electro-tactile and vibro-tactile sensor	2	2	2
5	How a bionic arm will work?	2	3	2
6	Brief about the Hybrid assistive devices.	2	3	2
7	What is Wolf motor function test?	2	4	1
8	Mention about Rutger ankle device?	2	4	1
9	What is Advocacy?	2	5	1
10	Distinguish Rehabilitation engineering and Rehabilitation medicine	2	5	2

PART- B(5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks	CO	BL
11 (a) (i)	Classify the types of disabilities and its level of preventions	7	1	2
(ii)	Discuss the characteristics of activity of daily living	6	1	2
OR				
11 (b) (i)	Discuss about the rehabilitation team, the members and their functions.	9	1	2
(ii)	Brief about the need of appropriate technology in rehabilitation engineering .	4	1	2
12 (a) (i)	Explain any one tactal vision substitute device with necessary diagram	8	2	2
(ii)	How closed circuit television for visual disability works?	5	2	2
OR				

12 (b) (i)	Classify the types of deafness and describe the working of hearing aids.	8	2	2
(ii)	Mention the working of cochlear implant with neat diagram.	5	2	2
13 (a) (i)	Design a myoelectric arm to perform flexion and extension at elbow level.	8	3	3
(ii)	Discuss about different dynamic splinters.	5	3	2

OR

13 (b) (i)	Develop a protocol using electrical stimulation for the restoration of hand function for paralyzed subject.	8	3	3
(ii)	Brief about different static splinters.	5	3	2
14 (a)	Compute a model using virtual reality for the rehabilitation of both upper and lower extremity function	13	4	3

OR

14 (b)	Compute a model using virtual reality for hand motor recovery system using haptic device.	13	4	3
15 (a) i	Discuss about the acts under the National Human rights commission of India for disability.	7	5	2
(ii)	Discuss about Rehabilitation Strategies to Promote Functional Recovery	6	5	2

OR

15 (b) i	What is health advocacy? Discuss its key process.	7	5	2
(ii)	Discuss about stages in rehabilitation therapy.	6	5	2

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16.	Design a wheel chair with maximum functionality for spinal cord injury subject.	15	2	5

