SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF MEDICAL ELECTRONICS

QUESTION BANK

VI SEMESTER – MDE

1910601 – HUMAN ASSIST DEVICES

Regulation – 2019

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Prepared by

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SUBJECT : 1910601 HUMAN ASSIST DEVICES
SEM / YEAR : VI / III

UNIT I – CARDIAC ASSIST DEVICES
Synchronous counter pulsation, assisted through respiration right ventricular by-pass pump, left ventricular bypass pump, open chest and closed chest type, Principle and problems --Intra-Aortic balloon pumping, Veno Arterial Pumping, Prosthetic Cardio Valves, Biomaterials for purposes, its characteristics and testing.

Q.No	Questions	COs	BT level	Competence
1.	What is synchronous counter pulsation?	CO1	BTL 1	Remembering
2.	Define the term "pulsation" in the context of synchronous counter pulsation.	CO1	BTL 1	Remembering
3.	Name the two types of ventricular bypass pumps used in synchronous counter pulsation.	CO1	BTL 1	Remembering
4.	Enumerate the purpose of a right ventricular bypass pump.	CO1	BTL 1	Remembering
5.	How an intra-aortic balloon pump works?	CO1	BTL 1	Remembering
6.	In what medical conditions is intra-aortic balloon pumping typically used?	CO1	BTL 1	Remembering
7.	State one key application of veno-arterial pumping.	CO1	BTL 1	Remembering
8.	List the main components of a veno-arterial pumping system.	CO1	BTL 1	Remembering
9.	What are prosthetic cardiac valves? Name two types of prosthetic cardiac valves.	CO1	BTL 1	Remembering
10.	Mention the primary role of a prosthetic cardiac valve.	CO1	BTL 1	Remembering
11.	Point out two characteristics of an ideal biomaterial for prosthetic cardiac valves.	CO1	BTL 1	Remembering
12.	Outline the common tests conducted to evaluate biomaterials for cardiovascular purposes.	CO1	BTL 1	Remembering
13.	How synchronous counter pulsation aids in improving cardiac output?	CO1	BTL 2	Understanding
14.	Define the mechanism by which a right ventricular bypass pump assists the heart.	CO1	BTL 2	Understanding
15.	Compare and contrast the open chest and closed chest types of ventricular bypass pumps.	CO1	BTL 2	Understanding
16.	Examine the role of the left ventricular bypass pump in the circulatory system during heart failure.	CO1	BTL 2	Understanding
17.	Elucidate the advantages and disadvantages of using an open chest versus a closed chest ventricular bypass pump.	CO1	BTL 2	Understanding
18.	Determine the role of the left and right ventricular bypass pumps in supporting heart function during synchronous counter pulsation.	CO1	BTL 2	Understanding
19.	Distinguish between Mechanical valves and Biological heart valves.	CO1	BTL 2	Understanding
20.	Predict the problems associated with mechanical heart valves.	CO1	BTL 2	Understanding
21.	Enumerate the disadvantage of a prosthetic valve.	CO1	BTL 2	Understanding
22.	Intrepret the major characteristics of biocompatibility.	CO1	BTL 2	Understanding

23.	Infer the limitations of biomaterials.	CO1	BTL 2	Understanding
24.	Why is it necessary to ensure biocompatibility when choosing biomaterials for cardiovascular devices?	CO1	BTL 2	Understanding

	PART B				
1.	Explain the principle of synchronous counter pulsation. Describe the potential challenges and limitations of using a synchronous counter pulsation device.	**(13)**	CO1	BTL 4	Analyzing
2.	Describe the mechanism of veno-arterial (VA) pumping and how it provides temporary circulatory support for patients with severe heart failure or during cardiac surgery.	**(13)**	CO1	BTL 4	Analyzing
3.	Explain in detail about the principle and patient preparation process of ECP.	**(13)**	CO1	BTL 3	Applying
4.	Illustrate in detail about the following with a neat diagram (i) Left ventricular assist device. (ii) Right ventricular assist device.	**(6)** **(7)**	CO1	BTL 3	Applying
5.	Analyze and explain the working of Veno –arterial pump and Intra – aortic balloon pump.	**(13)**	CO1	BTL 4	Analyzing
6.	Express in detail about the closed chest type and open chest type VAD.	**(13)**	CO1	BTL 4	Analyzing
7.	Elaborate in detail about the components of VAD with a neat diagram.	**(13)**	CO1	BTL 4	Analyzing
8.	(i) Point out the need for VAD along with its limitations. (ii) Explain about the different types of pumps used in VAD.	**(7)** **(6)**	CO1	BTL 3	Applying
9.	(i) Compare and contrast about the balloon inflation and deflation hemodynamics in IABP. (ii) Write short notes on veno-arterial pumping.	**(7)** **(6)**	CO1	BTL 4	Applying
10.	Assess the working of IABP and mention its advantages.	**(13)**	CO1	BTL 3	Applying
11.	Intrepret about the placement of IABP along with its indications and complication.	**(13)**	CO1	BTL 4	Analyzing
12.	Summarize about heart valves and its functions. List out the characteristics of biomaterials used in prosthetic heart valves.	**(13)**	CO1	BTL 3	Analyzing
13.	With a neat diagram Describe about mechanical heart valves and the biomaterials used in creating them.	**(13)**	CO1	BTL 4	Analyzing
14.	Enumerate the key aspects of biological heart valves and the challenges associated with their use.	**(13)**	CO1	BTL 3	Applying
15.	Compare and contrast mechanical and biological prosthetic cardiac valves.	**(13)**	CO1	BTL 4	Analyzing
16.	Intrepret about Venoarterial Pumping for Relief of Intractable Cardiac Failure in Man.	**(13)**	CO1	BTL 3	Applying
17.	Generalize about bioprosthetic valves and mention the complications of prosthetic valves.	**(13)**	CO1	BTL 3	Applying
	PART C				
1.	Describe the principle and working of External counter pulsation device.	**(15)**	CO1	BTL 3	Applying
2.	Explain in detail about the various Ventricular Assist Devices.	**(15)**	CO1	BTL 3	Applying

3.	Examine in detail about the principle and problems in Intra-Aortic Balloon Pump.	**(15)**	CO1	BTL 4	Analyzing
4.	Elaborate about the different types of prosthetic heart valves with a neat diagram and the biomaterials used in creating them.	**(15)**	CO1	BTL 3	Applying
5.	Explore about the device used to support heart function and blood flow in people with weak or failing hearts.	**(15)**	CO1	BTL 4	Analyzing

UNIT II – PROSTHETIC AND ORTHODIC DEVICES PROSTHESIS - INTRODUCTION

Incidence and Epidemiology- Rehabilitation of an Amputee- Problems in Stump- Immediate Postoperative Prosthetic Fitting- Prosthesis in Foot and Ankle Amputation (should go to Unit II) Hand and Arm replacement – Different Types of Models, Externally Powered Limb Prosthesis, Introduction to Orthosis- Functions of an Orthosis- Cervical Orthosis- Upper Limb Orthosis- Lower Limb Orthosis- Foot Wear Modifications- Feedback in Orthodic System, Functional Electrical Stimulation, , Materials for Prosthetic and Orthodic devices**.**

PART – A

Q.No	Questions	COs	BT level	Competence
1.	What is amputation and why is it done?	CO2	BTL 1	Remembering
2.	List out the different problems associated with stump.	CO2	BTL 1	Remembering
3.	Summarize the steps involved in rehabilitation of an amputee.	CO2	BTL 1	Remembering
4.	Classify the different amputations in Foot.	CO2	BTL 1	Remembering
5.	Mention the different prosthesis available for ankle amputation.	CO2	BTL 1	Remembering
6.	Define a Prosthesis.	CO2	BTL 1	Remembering
7.	What are the types of spinal orthosis?	CO2	BTL 1	Remembering
8.	Differentiate between the functions of a Prosthesis and an Orthosis.	CO2	BTL 1	Remembering
9.	Express any two of models for Hand and arm replacement along with its merits and demerits.	CO2	BTL 1	Remembering
10.	Differentiate between a prosthetic and prosthesis.	CO2	BTL 1	Remembering
11.	Point out the functions of an Orthosis.	CO2	BTL 1	Remembering
12.	List the functions of cervical orthosis.	CO2	BTL 1	Understanding
13.	Predict the best treatment for cervical instability.	CO2	BTL 2	Understanding
14.	Examine the principles included in upper limb orthosis.	CO2	BTL 2	Understanding
15.	Classify the different types of upper limb orthosis.	CO2	BTL 2	Understanding
16.	Draw the schematic representation of Functional electrical stimulation.	CO2	BTL 2	Understanding
17.	Identify the different types of lower limb orthosis.	CO2	BTL 2	Understanding
18.	Intrepret about Functional Electrical Stimulation.	CO2	BTL 2	Understanding
19.	Outline few applications of FES.	CO2	BTL 2	Understanding
20.	Predict the risks associated with the use of FES.	CO2	BTL 2	Understanding
21.	Determine the benefits of upper limb orthotics.	CO2	BTL 2	Understanding
22.	Classify upper extremity orthosis.	CO2	BTL 2	Understanding
23.	Infer the features of good orthosis.	CO2	BTL 2	Understanding
24.	Summarize the use of Orthosis in the Treatment of Foot and Ankle Pathology.	CO2	BTL 2	Understanding

	PART B				
1.	Outline the characteristics of ideal orthosis and explain the principle of foot orthosis.	**(13)**	CO2	BTL 4	Analyzing
2.	Examine the various stages of rehabilitation in an amputee.	**(13)**	CO2	BTL 4	Analyzing
3.	Assess the various problems which occur in a stump and explain about them in detail.	**(13)**	CO2	BTL 3	Applying
4.	Intrepret the importance of Immediate Postoperative prosthesis? List its advantages and disadvantages.	**(13)**	CO2	BTL 3	Applying
5.	Describe the potential risks and complications associated with Syme's amputation, and analyze how these risks can affect the patient's overall recovery and quality of life.	**(13)**	CO2	BTL 4	Analyzing
6.	Differentiate the following methods : (i) Body powered hand prosthesis. (ii) Externally powered hand prosthesis.	**(7)** **(6)**	CO2	BTL 4	Analyzing
7.	Appraise the evaluative process used to determine appropriate prescription for individuals requiring a lower extremity orthosis.	**(13)**	CO2	BTL 4	Analyzing
8.	Explain the construction and principle of operation of the Bionic Arm. Mention its advantages.	**(13)**	CO2	BTL 3	Applying
9.	Analyze the effectiveness of cervical orthosis and also explain its types in detail.	**(13)**	CO2	BTL 4	Applying
10.	Describe the types of Ankle foot orthosis and draw the pathological Gait cycle diagrams.	**(13)**	CO2	BTL 3	Applying
11.	Distinguish the different types of externally powered limb prosthesis and list few examples for external prosthetic appliances.	**(13)**	CO2	BTL 4	Analyzing
12.	Summarize the problems which occur in the foot and how footwear modifications can rectify it?	**(13)**	CO2	BTL 3	Analyzing
13.	Write short notes on feedback in Orthodic System and examine about pressure feedback systems for upper limb .	**(13)**	CO2	BTL 4	Analyzing
14.	Describe the components of Myoelectric Prosthetics for the Upper Limb.	**(13)**	CO2	BTL 3	Applying
15.	Evaluate the advantages of functional electrical stimulation and identify the potential side effects associated with its use.	**(13)**	CO2	BTL 3	Applying
16.	Examine the principles of foot biomechanics and gait and determine the movements that occur in the three planes of the foot.	**(13)**	CO2	BTL 4	Analyzing
17.	Compare and contrast about transradial prosthesis and transhumeral prosthesis.	**(13)**	CO2	BTL 4	Analyzing
	PART C				
1.	Describe in detail about the different types of prosthetic models in Arm replacement.	**(15)**	CO2	BTL 3	Applying
2.	Examine the prosthetic considerations at different amputation Levels.	**(15)**	CO2	BTL 4	Analyzing
3.	Summarize the principle and components of Upper Limb Orthosis.	**(15)**	CO2	BTL 3	Applying
4.	Determine the contraindications for using functional electrical stimulation mention the 3 main reasons we use electrical stimulation.	**(15)**	CO2	BTL 3	Applying
5.	Analyze the Surgical revision for stump problems after traumatic above-ankle amputations of the lower extremity.	**(15)**	CO2	BTL 4	Analyzing

UNIT III – VISUAL AIDS

Ultrasonic and laser canes, Intra ocular lens, Braille Reader, Tactile devices for visually Challenged, Text to voice converter, Screen readers.

PART – A

Q.No	Questions	CO	BT level	Competence
1.	List the functions and applications of ultrasonic canes.	CO3	BTL 1	Remembering
2.	Why are IR sensors used in smart stick for the blind?	CO3	BTL 1	Remembering
3.	State the principle of Ultrasound sensor.	CO3	BTL 1	Remembering
4.	Identify the risks associated with Intra ocular lens.	CO3	BTL 1	Remembering
5.	Write about the different types of Intra ocular lens.	CO3	BTL 1	Remembering
6.	What does a braille reader do?	CO3	BTL 1	Remembering
7.	Mention the disadvantages of braille.	CO3	BTL 1	Remembering
8.	Point out the benefits of a braille reader.	CO3	BTL 1	Remembering
9.	Mention about Braille and its uses.	CO3	BTL 1	Remembering
10.	Point out the limitations of screen readers.	CO3	BTL 1	Remembering
11.	Define intraocular lens, and how does it help people with vision problems?	CO3	BTL 1	Remembering
12.	Name the tactile assist devices used for visually challenged people.	CO3	BTL 1	Remembering
13.	Cite some of the visual aids used by visually challenged individuals.	CO3	BTL 2	Understanding
14.	Outline the problems caused by cataract.	CO3	BTL 2	Understanding
15.	Compare the different methods for developing tactile sensors.	CO3	BTL 2	Understanding
16.	Classify the different types of tactile sensors.	CO3	BTL 2	Understanding
17.	Summarize the benefits of optical character recognition (OCR) in healthcare.	CO3	BTL 2	Understanding
18.	Differentiate between extracapsular and intracapsular cataract extraction?	CO3	BTL 2	Understanding
19.	Define Intra ocular lens.	CO3	BTL 2	Understanding
20.	Interpret the function of a screen reader.	CO3	BTL 2	Understanding
21.	What is the most common lens used in cataract surgery?	CO3	BTL 2	Understanding
22.	Examine the principle of text to voice converter.	CO3	BTL 2	Understanding
23.	Which intraocular lens would ophthalmologists choose for themselves?	CO3	BTL 2	Understanding
24.	Enumerate the components present in a text to speech converter.	CO3	BTL 2	Understanding

PART B

1.	Analyze the concept of ultrasonic canes, and examine advantages and limitations.	**(13)**	CO3	BTL 4	Analyzing
2.	Examine the principle and functions of laser canes, and analyze their effectiveness in assisting users.	**(13)**	CO3	BTL 4	Analyzing
3.	Apply the concept of Braille and Describe how Braille readers help individuals with visual impairments.	**(13)**	CO3	BTL 3	Applying
4.	Explain the functions of an intraocular lens and how it is used in medical practice.	**(13)**	CO3	BTL 3	Applying
5.	Assess the necessity of intraocular lenses (IOL) and evaluate their benefits and limitations.	**(13)**	CO3	BTL 4	Analyzing
6.	Evaluate the various types of intraocular lenses (IOLs) and	**(13)**	CO3	BTL 4	Analyzing

	analyze their working principles.				
7.	Review the functions of four different screen readers and evaluate how they assist users.	**(13)**	CO3	BTL 4	Analyzing
8.	Describe in detail the process of converting text to speech, including a block diagram to illustrate the steps involved.	**(13)**	CO3	BTL 3	Applying
9.	Provide a detailed explanation about the following (i) Braille reader. (ii) Tactile devices.	 **(7)** **(6)**	CO3	BTL 4	Applying
10.	Investigate the devices commonly used by visually impaired individuals in their daily life and identify the assistive devices specifically designed for visually impaired children.	**(13)**	CO3	BTL 3	Applying
11.	Describe about the following visual aid devices (i) Ultrasound cane. (ii) Intra ocular lens.	 **(7)** **(6)**	CO3	BTL 4	Analyzing
12.	(i) Write a note on text to speech converter, also analyze its advantages and disadvantages. (ii) Describe the function of screen readers with an example.	**(7)** **(6)**	CO3	BTL 3	Analyzing
13.	Explore the different tactile devices used by visually challenged individuals and evaluate their effectiveness in enhancing accessibility.	**(13)**	CO3	BTL 4	Analyzing
14.	Describe the process of improving spatial learning and mobility training for visually impaired individuals, emphasizing important techniques and strategies. .	**(13)**	CO3	BTL 3	Applying
15.	Inspect the significance and necessity of tactile diagrams for visually impaired individuals, evaluating how they contribute to accessibility and understanding.	**(13)**	CO3	BTL 4	Analyzing
16.	Elucidate the working principle of ultrasonic canes, providing a clear diagram to illustrate how they function.	**(13)**	CO3	BTL 3	Applying
17.	Explain the function of a Braille reader and examine the unique features of Braille reading.	**(13)**	CO3	BTL 3	Applying
PART C					
1.	Explain the necessity of the Ultra Cane in alerting visually impaired individuals to obstacles, highlighting its key features and benefits. .	**(15)**	CO3	BTL 3	Applying
2.	Describe the key features and touch gestures of screen readers for visually impaired individuals, and explain how these features improve accessibility and usability.	**(15)**	CO3	BTL 3	Applying
3.	Examine the features of intraocular lenses (IOLs) designed to minimize the risk of posterior capsule opacification, and assess their effectiveness in preventing this complication.	**(15)**	CO3	BTL 4	Analyzing
4.	Evaluate the design features of contemporary intraocular lenses (IOLs) and recognize the symptoms associated with dysphotopsia. .	**(15)**	CO3	BTL 3	Applying
5.	Assess the impact of emerging assistive technologies on the occupational risks experienced by blind and visually impaired individuals, and evaluate how these technologies help mitigate challenges in the workplace.	**(15)**	CO3	BTL 4	Analyzing

UNIT IV – HEARING AND SPEECH AIDS				
Audiograms, types of deafness - conductive and nervous, hearing aids - Types, constructional and functional characteristics. Cochlear implants- Need, constructional details, speech trainer				
PART – A				
Q.No	**Questions**	**CO**	**BT level**	**Competence**
1.	State the uses of audiogram.	CO4	BTL 1	Remembering
2.	Define pure tone audiometry.	CO4	BTL 1	Remembering
3.	Mention your views on bone conduction audiometry.	CO4	BTL 1	Remembering
4.	Label an audiometer circuit and why is it used?	CO4	BTL 1	Remembering
5.	List the top 5 rated hearing aids.	CO4	BTL 1	Remembering
6.	Point out the symptoms of conductive hearing loss.	CO4	BTL 1	Remembering
7.	How sensor neural hearing loss is defined?	CO4	BTL 1	Remembering
8.	What types of hearing aids can be used for mixed hearing loss?	CO4	BTL 1	Remembering
9.	Mention the disadvantages of hearing aids.	CO4	BTL 1	Remembering
10.	When should a hearing aid be used?	CO4	BTL 1	Remembering
11.	What do you mean by In-the-ear hearing aid?	CO4	BTL 1	Remembering
12.	Specify the types of hearing loss can be treated with behind-the-ear hearing aids.	CO4	BTL 1	Remembering
13.	Summarize about Cochlear Implants.	CO4	BTL 2	Understanding
14.	Differentiate between hearing aids and cochlear implant.	CO4	BTL 2	Understanding
15.	Infer the risks involved in cochlear implants.	CO4	BTL 2	Understanding
16.	How long do cochlear implants last?	CO4	BTL 2	Understanding
17.	Identify the need for cochlear implants.	CO4	BTL 2	Understanding
18.	Write the principle of Air conduction.	CO4	BTL 2	Understanding
19.	Distinguish between air conduction and bone conduction.	CO4	BTL 2	Understanding
20.	Cite some advantages and disadvantages of Hearing Aids.	CO4	BTL 2	Understanding
21.	Determine the pros and cons of cochlear implant.	CO4	BTL 2	Understanding
22.	Examine the 4 stages of hearing.	CO4	BTL 2	Understanding
23.	Explore the 5 components of speech.	CO4	BTL 2	Understanding
24.	Elucidate the major components of a cochlear implant.	CO4	BTL 2	Understanding

PART B					
1.	Analyze the different types of audiograms and their specific applications in clinical audiology. .	**(13)**	CO4	BTL 4	Analyzing
2.	Describe the role of audiometers in occupational hearing tests and evaluate their importance in preventing noise-induced hearing damage.	**(13)**	CO4	BTL 4	Analyzing
3.	Explain the principle of bone conduction audiometry and describe how it differs from air conduction audiometry in testing hearing ability.	**(13)**	CO4	BTL 3	Applying
4.	Identify the different types of hearing loss and provide a detailed explanation of the causes associated with each type.	**(13)**	CO4	BTL 3	Applying
5.	Examine the Rinne and Weber tests, detailing the procedure for performing each test and assessing their effectiveness in diagnosing different types of hearing loss.	**(13)**	CO4	BTL 4	Analyzing

6.	Explain the following (i) Conductive hearing loss. (ii) Sensorineural hearing loss.	**(7)** **(6)**	CO4	BTL 4	Analyzing
7.	Describe the different types of hearing aids and analyze the various causes of hearing impairment, evaluating their impact on hearing ability.	**(13)**	CO4	BTL 4	Analyzing
8.	Explain how In-the-ear (ITE) and Behind-the-ear (BTE) hearing aids help individuals with deafness, and Describe the advantages and disadvantages of each method.	**(13)**	CO4	BTL 3	Applying
9.	Describe the following (i)Completely in the canal (CIC) hearing aid. (ii) In-the-canal(ITC) hearing aid.	**(7)** **(6)**	CO4	BTL 4	Applying
10.	Elaborate on the benefits of digital hearing aids in terms of sound processing and customization for different types of hearing loss.	**(13)**	CO4	BTL 3	Applying
11.	Explain the process of cochlear implantation from assessment to activation, and Describe the importance of post-implantation rehabilitation for optimal outcomes.	**(13)**	CO4	BTL 4	Analyzing
12.	Compare the functions of the different external parts of a cochlear implant, and evaluate how advancements in these components have improved the overall efficacy of the device.	**(13)**	CO4	BTL 4	Analyzing
13.	Write a brief note on the following (i) Hearing aids. (ii) Cochlear Implant.	**(7)** **(6)**	CO4	BTL 4	Analyzing
14.	State the purpose of a speech trainer and explain how it works, highlighting its advantages. .	**(13)**	CO4	BTL 3	Applying
15.	Evaluate the importance of speech therapy in the treatment of speech and language disorders, and analyze its role in improving communication skills in children and adults.	**(13)**	CO4	BTL 4	Analyzing
16.	Examine the Hearing Loss Treatment procedures and Intervention Services offered by health care units.	**(13)**	CO4	BTL 3	Applying
17.	Explain the different types of hearing loss and describe the diagnostic methods used to identify and assess each type.	**(13)**	CO4	BTL 3	Applying
	PART-C				
1.	Describe in detail the instrument used to measure the range of hearing, outlining its components, functions, and how it is used to assess a person's hearing ability.	**(15)**	CO4	BTL 3	Applying
2.	Examine the different types of hearing aids and describe their construction, focusing on the features and components that make them effective in aiding individuals with hearing loss.	**(15)**	CO4	BTL 3	Applying
3.	Analyze the advancements in ear implant technology and how they have improved the quality of life for individuals with severe hearing loss. .	**(15)**	CO4	BTL 4	Analyzing
4.	Describe in detail the different types of hearing impairments, explaining their causes, symptoms, and how each type affects an individual's ability to hear. .	**(15)**	CO4	BTL 3	Applying
5.	Clarify the concept of pure tone audiometry in detail, and assess the different masking techniques used in audiometric testing to guarantee accurate hearing evaluation.	**(15)**	CO4	BTL 4	Analyzing

UNIT V – REHABILITATION MEDICINE AND ADVOCACY				
Physiological aspects of Function recovery, Psychological aspects of Rehabilitation therapy, Legal aspect available in choosing the device and provision available in education, job and in day-to-day life.				
PART – A				
Q.No	**Questions**	**CO**	**BT level**	**Competence**
1.	What is rehabilitation?	CO5	BTL 1	Remembering
2.	Outline the scope of physical medicine and rehabilitation.	CO5	BTL 1	Remembering
3.	Define function recovery?	CO5	BTL 1	Remembering
4.	Compare and contrast the 5 advocacy tools.	CO5	BTL 1	Remembering
5.	Determine the physiological aspects of function recovery.	CO5	BTL 1	Remembering
6.	Identify the Psychological aspects of physical education?	CO5	BTL 1	Remembering
7.	Why is psychology required in rehabilitation?	CO5	BTL 1	Remembering
8.	Justify why psychological aspects is required in rehabilitation therapy?	CO5	BTL 1	Remembering
9.	Classify the different types of rehabilitation.	CO5	BTL 1	Remembering
10.	Mention the need for rehabilitation.	CO5	BTL 1	Remembering
11.	List the objectives of rehabilitation.	CO5	BTL 1	Remembering
12.	Mention the necessity of disability act in India.	CO5	BTL 1	Remembering
13.	State the legal rights for disabled in education.	CO5	BTL 2	Understanding
14.	Compare and contrast the 5 advocacy tools.	CO5	BTL 2	Understanding
15.	Infer any four benefits experienced by the disabled people in day-to- day life.	CO5	BTL 2	Understanding
16.	Estimate the different approaches of advocacy.	CO5	BTL 2	Understanding
17.	Predict the purpose of rehabilitation act.	CO5	BTL 2	Understanding
18.	Point out the rights of a disabled person.	CO5	BTL 2	Understanding
19.	Conclude the technologies that help people with disabilities.	CO5	BTL 2	Understanding
20.	Differentiate between a physiotherapist and an occupational therapist.	CO5	BTL 2	Understanding
21.	Tabulate the difference between inpatient and outpatient rehabilitation.	CO5	BTL 2	Understanding
22.	Examine the role of assistive technology in daily life of persons with disabilities.	CO5	BTL 2	Understanding
23.	Examine the role of advocacy in public health.	CO5	BTL 2	Understanding
24.	Summarize the benefits of rehabilitation.	CO5	BTL 2	Understanding

PART – B					
1.	Intrepret the different types of rehabilitation used in function recovery, and explain how each type contributes to the restoration of physical, mental, and vocational abilities	**13)**	CO5	BTL 4	Analyzing
2.	Analyze the impact of physical therapy on physiological recovery and how it aids in restoring muscle strength and joint mobility.	**(13)**	CO5	BTL 4	Analyzing

3.	Summarize on the following with examples (i) Preventive rehabilitation. (ii) Restorative rehabilitation.	 **(6)** **(7)**	CO5	BTL 3	Applying
4.	Examine the psychological impact of long-term rehabilitation on individuals with chronic conditions and how it affects their outlook on life and recovery.	**(13)**	CO5	BTL 3	Applying
5.	Explore the rights of employees with disabilities to access assistive devices in the workplace and Describe how employers are legally obligated to provide these accommodations.	**(13)**	CO5	BTL 4	Analyzing
6.	Evaluate the role of the government in providing social security benefits, financial assistance, and healthcare services to persons with disabilities under the Disability Act.	**(13)**	CO5	BTL 4	Analyzing
7.	Explore the importance of hydration and its effect on the physiological recovery process after physical exertion or trauma.	**(13)**	CO5	BTL 4	Analyzing
8.	Describe the legal aspects involved in selecting assistive devices for individuals with disabilities, and explain how these laws ensure equitable access to necessary equipment.	**(13)**	CO5	BTL 3	Applying
9.	Explain the benefits of obtaining a disability certificate in India and Describe how it helps individuals access legal rights, government schemes, and other essential services.	**(13)**	CO5	BTL 4	Applying
10.	Intrepret the legal provisions available for individuals with disabilities in education, especially regarding accommodations and assistive devices.	**(13)**	CO5	BTL 3	Applying
11.	Investigate the role of laws such as the Americans with Disabilities Act (ADA) and the Disability Act of India in securing rights to education, employment, and daily life provisions for people with disabilities.	**(13)**	CO5	BTL 4	Analyzing
12.	Enumerate the following briefly (i) Provision available for the disabled in jobs. (ii) Provision available for the disabled in education.	 **(6)** **(7)**	CO5	BTL 3	Analyzing
13.	Justify the importance of rehabilitation and examine the essentials of physical medicine and rehabilitation.	**(13)**	CO5	BTL 4	Analyzing
14.	Write short notes on the benefits provided by the government for the disabled in day-to-day life.	**(13)**	CO5	BTL 3	Applying
15.	Describe the scope, core principles and values of psychosocial rehabilitation.	**(13)**	CO5	BTL 4	Analyzing
16.	Summarize the ethical issues in rehabilitation medicine and Describe the three ways a physiatrist can be your advocate after an injury.	**(13)**	CO5	BTL 3	Applying

17.	Appraise the role of a Rehabilitation Medicine Doctor and mention the Common interventions and duties of a Rehabilitation doctor.	**(13)**	CO5	BTL 3	Applying

PART C					
1.	Describe the Psychological aspects of rehabilitation following serious athletic injuries with special reference to goal setting.	**(15)**	CO5	BTL 3	Applying
2.	Summarize the need for Rehabilitation therapy and what happens if Rehabilitation is not done on time? Explain how psychological aspects aids in Rehabilitation therapy.	**(15)**	CO5	BTL 3	Applying
3.	Analyze the legal aspects available in choosing assistive device and explain the usage of assistive technology in special education.	**(15)**	CO5	BTL 4	Analyzing
4.	Assess the strategies for providing assistive devices and point out the primary purpose of assistive devices.	**(15)**	CO5	BTL 3	Applying
5.	Explore the 7 types of rehabilitation therapy commonly used in treatment plans designed to meet the primary goals.	**(15)**	CO5	BTL 4	Analyzing