

**Scheme –I**  
**Sample Question Paper**

**Program Name** : Diploma in Medical Electronics  
**Program Code** : MU  
**Semester** : Fifth  
**Course Title** : Rehabilitation Engineering  
**Marks** : 70

**22545**

**Time: 3 Hrs.**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

**Q.1) Attempt any FIVE of the following.**

**10 Marks**

- a) State the goals of rehabilitation. (Any two)
- b) Define Gait Cycle.
- c) Give classification of Orthosis on the basis of its functions.
- d) Enlist the parts of wheel chair.
- e) Draw labelled diagram of any one motion analysis technique.
- f) Give any two applications of Functional Electrical Stimulation.
- g) Suggest any two advanced applications in Rehabilitation Engineering.

**Q.2) Attempt any THREE of the following.**

**12 Marks**

- a) State the need for Self alighting orthotic knee.
- b) List the parts of Goniometer and state the function of each part.
- c) Give classification of Prosthesis based on construction design, materials used and power system.
- d) Draw a labeled sketch of walking stick and tripods.

**Q.3) Attempt any THREE of the following.**

**12 Marks**

- a) Describe the concept of hierarchically controlled prosthetic hand.
- b) List different approaches for delivery of rehabilitation care.

- c) Discuss the concept of sensory rehabilitation.
- d) What is the difference between manual and electric power wheelchair?

**Q.4) Attempt any THREE of the following.**

**12 Marks**

- a) Suggest an Orthosis to protect and support the muscular and bony structures of your spine. Describe it in detail.
- b) Explain the construction of Jaipur Foot.
- c) Explain the structure and application of parallel bars and crutches.
- d) Give designing aspects of intelligent prosthetic knee.
- e) Describe self alighting orthotic knee joint.

**Q.5) Attempt any TWO of the following.**

**12 Marks**

- a) Define Gait cycle and explain various steps of gait cycle analysis.
- b) Suggest design criterion of walking aids for mentally impaired patients.
- c) A person is having disability related to hip, knee and ankle. Suggest a suitable prosthesis and explain it in detail.

**Q.6) Attempt any TWO of the following.**

**12 Marks**

- a) Explain design of powered wheel chair with its Standards.
- b) Describe the process of joint angle measurement system.
- c) Describe basic components of Prosthesis.

**Scheme –I**  
**Sample Test Paper - I**

**Program Name** : Diploma in Medical Electronics  
**Program Code** : MU  
**Semester** : Fifth  
**Course Title** : Rehabilitation Engineering  
**Marks** : 20

**22545**

**Time: 1 Hour**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

**Q.1 Attempt any FOUR.**

**08 Marks**

- a) State the function of Selspot.
- b) Define Rehabilitation.
- c) State the function of Goniometer.
- d) Enlist the members of rehabilitation team.
- e) State the function of foot switches.
- f) List any two approaches for delivering rehabilitation care.

**Q.2 Attempt any THREE.**

**12 Marks**

- a) Draw different phases in Gait cycle.
- b) Explain the engineering concept in motor rehabilitation.
- c) Write the process of joint angle measurement by Goniometer.
- d) Describe anatomical lever system with neat diagram.
- e) Draw labelled diagram of any one motion analysis technique and describe it in detail.

**Scheme –I**  
**Sample Test Paper - II**

**Program Name** : Diploma in Medical Electronics  
**Program Code** : MU  
**Semester** : Fifth  
**Course Title** : Rehabilitation Engineering  
**Marks** : 20

**22545**

**Time: 1 Hour**

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**Instructions:**

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

**Q.1 Attempt any FOUR.**

**08 Marks**

- a) Define Orthosis.
- b) List materials used in Prosthesis.
- c) State the function of Mobility aids.
- d) Draw labelled diagram of Prosthetic hand.
- e) Enlist contraindications of orthosis.
- f) Enlist various parts of Wheel chair.

**Q.2 Attempt any THREE.**

**12 Marks**

- a) Draw any one upper limb with suitable diagram.
- b) Give classification of Prosthesis based on construction design, materials used and power system.
- c) Draw labelled diagrams of parallel bars and crutches.
- d) Describe the concept of powered wheel chair.
- e) Draw labelled diagram of hierarchically controlled prosthetic hand.
- f) Define Functional Electrical Stimulation and describe it.