

**B.Tech. SEM -IV Bio Medical 2014 Course (CBCS) : SUMMER -
2019**

SUBJECT : REHABILITATION ENGINEERING

Day : Saturday

Time : 10.00 AM TO 01.00 PM

Date : 01/06/2019

S-2019-2634

Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagram **WHEREVER** necessary.
 - 4) Assume suitable data if necessary.
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Q. 1 What do you mean by biomechanics? Describe the biomechanics of ligaments in detail. **(10)**

OR

Discuss biomechanics of tendons with diagram. **(10)**

Q. 2 a) What are the benefits and effects of joint motion? **(05)**

b) What is normal gait? Give example of normal gait with diagram. **(05)**

OR

When the joint replacement is necessary? Explain joint replacement for major joints in body. **(10)**

Q. 3 a) List the use of thermoplastic and thermosetting resins in orthosis. Give its importance. **(05)**

b) What are the recent development in orthosis? **(05)**

OR

Explain the principle of pressure system in orthotic devices. Give examples. **(10)**

Q. 4 Explain the general design considerations for development of artificial arm, comment on material of construction. **(10)**

OR

Discuss the PTB (Patella Tendon Bearing) total contact socket with reference to biomechanical consideration and alignment concept. Comment on safety. **(10)**

Q. 5 Write a short note on: **(10)**

- a) Amputation surgery in the field of biomechanics
- b) Recent developments in lower extremity prosthetic devices

OR

Explain the term rehabilitation. What do you mean by prosthetic treatment related to prosthesis? Explain with suitable example. **(10)**

Q. 6 Write short note on: **(10)**

- a) Amputee Gait
- b) Pretension or grasp

OR

In relation to the lower extremity prosthesis, design an artificial limb. Explain the instrumentation associated with it. **(10)**

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