B.TECH. SEM -IV BIO MEDICAL 2014 COURSE (CBCS) : SUMMER - 2018

SUBJECT : REHABILITATION ENGINEERING

Day : **Tuesday** | **S-2018-2314** | Time : **10.00 AM TO 01.00 PM**
Date : **12/06/2018** | Max. Marks : 60

N. B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labelled diagram **WHEREVER** necessary.

Q. 1 Write short notes on:

a) Biomechanics of Skin **(05)**
b) Stress – Strain Curve **(05)**

OR

What is rehabilitation engineering? What is the role of biomedical engineer in rehabilitation engineering? **(10)**

Q. 2 Discuss in detail joint forces results in the normal and disabled human body. **(10)**

OR

List various types of gait. Explain any two types with disease. **(10)**

Q. 3 **a)** What are the contraindications and disadvantages of orthosis? **(05)**
b) Explain spinal orthosis with neat diagram. **(05)**

OR

What is basic principle of orthosis? What is the purpose of providing it? **(10)**

Q. 4 Explain following w.r.t. prosthetic design : **(10)**

a) Prosthetic construction design-exoskeletal and endoskeletal
b) Power system used
c) Materials used

OR

Explain PTB prosthesis with detail components and their role using neat diagram. **(10)**

Q. 5 What are prosthetic applications of artificial arms and hands? Explain safety majors while designing upper and lower extremities. **(10)**

OR

Discuss in detail general design considerations for upper extremity prosthetic devices. **(10)**

Q. 6 Explain transfemoral computation prosthesis with respect to the design of socket, knee, shank and foot ankle part of the lower extremity with suitable diagram. **(10)**

OR

Write short notes on:

a) Amputation surgery **(05)**
b) Recent development in lower extremity prosthesis **(05)**

* * * * *

120618-m-engineering-pune