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B.TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

FUNDAMENTALS OF BIOMEDICAL ENGINEERING

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) What do understand by musculoskeletal system?

(b) What is stress?

(c) What is strain?

(d) What is the deference between the hip and knee joint.

(e) What is turbulent flow?

(f) Write the advantage of arteries in human body.

(g) What do you mean by synovial fluid?

(h) What is positron?

(i) What is joint friction?

(j) Write two features of telemedicine.

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) What is biocompatibility? Discuss different types of biocompatible materials.

(b) What do you understand by strain-stress relationship of the human bone)?

(c) Discuss mechanical properties of skin, soft tissues and bone.

(d) Discuss Standards for medical data interchange.

(e) Discuss the rheological properties of blood.

(f) What do you understand by non-newtonian and pulsatile models?

(g) Write short notes on the following:

(i) Ultrasound

(ii) Tomography.

(h) Write short notes on the following:

(i) Polymers

(ii) Ceramics.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. Discuss the principle and working of magnetic resonance along with its clinical applications.

4. Describe the advantages of data collection in health care.

5. Explain detailed examination of the four main areas of medical imaging.