

18E51

B. Tech. EXAMINATION, 2020

(Fifth Semester)

(C Scheme) (Main Only)

(BME)

BME301C

BIOMECHANICS AND REHABILITATION ENGINEERING

Time : 2½ Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Discuss Newton Laws of Mechanics. Taking an example calculate the moment of an inclined force from its X and Y components.
2. What are free body diagrams ? Taking 2-D back model show the internal force acting to maintain equilibrium.
3. (a) Enlist and explain mechanical characteristics of the bone.
(b) What is visco-elasticity ? Explain the model of visco-elasticity.
4. What is motor unit recruitment ? Is there any relation between firing rate and recruitment threshold ? Explain.

5. Discuss in detail the biomechanics of push taking track and field start as an example.
6. What are different gait patterns ? Give the analysis of normal gait.
7. (a) Discuss the principle of three point pressure.
(b) What are prosthetics and orthotics ? What is the purposes of designing them ?
8. Explain about the materials and designs involved in making total hip joint.