

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VII Examination-Nov/Dec.-2011

Subject code: 170301**Date: 19/11/2011****Subject Name: Biomechanics****Time: 10.30 am-01.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe the intrinsic mechanical properties of fluid. **07**
(b) Define GRF. Explain GRF during human walking with necessary graphs. **07**
- Q.2** (a) Explain the principle of Hydrostatics & its application in sphygmomanometer. **07**
(b) Explain Laminar flow in blood vessels with neat diagram. **07**
- OR**
- (b) Explain the control of body pressure by baroreceptors. **07**
- Q.3** (a) Explain GRF during human running with necessary graphs. **07**
(b) What is Fatigue Failure of Bone? Describe the methods to overcome it. **07**
- OR**
- Q.3** (a) Briefly explain Joint moments & Power during locomotion. **07**
(b) Describe the ventricular hemodynamics. **07**
- Q.4** (a) Explain Rigidity & Wear with necessary examples. **07**
(b) Enlist & explain the wear problems associated with UHMWPE. **07**
- OR**
- Q.4** (a) What is transcapillary Filtration? Define Starling Pressures. **07**
(b) Explain method of calculation of the mechanical energy of the center of mass of the body from the force platform measurements. **07**
- Q.5** (a) What is heat transfer? Explain the modes of heat transfer. **07**
(b) What is friction? Explain Solid and Fluid friction with diagrams. **07**
- OR**
- Q.5** (a) Draw & explain the schematics of the moments acting about the human ankle during hopping movement. **07**
(b) Explain mathematical model of bioheat transfer. **07**
