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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION - SUMMER 2016

Subject Code:2160308 Date: 13/05/2016 **Subject Name: Biomechanics** Time: 10:30 AM to 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 below given forces. 14 1. External & Internal Forces 2. Tensile and Compressive Forces 3. Coplanar Forces 4. Collinear Forces 5. Concurrent Forces 6. Parallel Force 7. Gravitational Force or Weight **Q.2** (a) Define force and explain the properties of force as vector quantity. **07 (b)** Explain the structure and composition of bones. **07** OR **(b)** List and explain assumptions for ideal blood vessel. 07 (a) Briefly describe the characteristics of ankle, knee and hip joints. 0.3 07 **(b)** Explain the property of Vorticity for blood with necessary equations. **07** OR Q.3 (a) Briefly describe the characteristics of Shoulder, elbow and wrist joints. 07 **(b)** Explain the property of Viscocity for blood with necessary equations. 07 0.4 (a) Illustrate the methods of determining respiratory pressure with diagrams. 07 **(b)** Write a brief note on Rheological properties of blood. 07 **Q.4** (a) List and explain various properties of flow rate and volume. 07 0.4 (b) Contrast the laminar flow & turbulent flow in blood vessels with appropriate 07 diagrams. **Q.5** (a) Explain the Extrinsic & Intrinsic mechanical properties of fluid. **07** (b) Give a brief description to the uses of composite materials for orthopedic **07** implants. OR (a) List and explain the applications of gait and locomotion analysis. **07** 0.5 **07 (b)** Describe the property of Rigidity & Wear with necessary examples.
