

**II B.Tech II Semester Supplementary Examinations, April/May 2006**  
**BIO-MECHANICS AND BIO-FLUIDS**  
**(Bio-Medical Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Define Newtonian and non-Newtonian fluid. Give example of each one. State Hook's law of elasticity. Establish the relation between stress and strain. [8+4+4]
2. What are the constituents of blood? Write down the physical characteristics of constituents. Define apparent and normal viscosity. In normal human what are the values of these two viscosities. [4+4+4+4]
3. Define viscoelasticity. Explain viscoelastic model enunciated by Maxwell citing example. [16]
4. What are the resistant factors for blood flow? Write down the effect of viscosity in arterioles, capillaries and venules. [16]
5. Draw a graph on lung volumes and some measurements related to mechanics of breathing. Describe in detail all steps. [6+10]
6. Describe with diagram the cardiovascular system. [6+10]
7. Explain load bearing properties of articular cartilage in synovial joints. [16]
8. Describe the function of ligaments and tendons in normal locomotion. [8+8]

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