

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013

Subject code: 733102**Date: 15-05-2013****Subject Name: Cardiovascular Mechanics****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) Explain heart sounds in detail. **07**
(b) Describe mathematical model of mitral valve in terms of characteristics equations, frequency response and time response plots. **07**
- Q.2** (a) Write short notes on fluid viscosity and pipe flow. **07**
(b) Explain structure and function of Aortic valve. **07**
- OR**
- (b) Write a short note on heart valve diseases. **07**
- Q.3** (a) Define non-Newtonian fluid & describe power constitutive model that exhibits blood characteristics. **07**
(b) Write a short note on cardiac cycle. **07**
- OR**
- Q.3** (a) Explain Poiseuille's law for the flow rate measurement of a Newtonian fluid in a rigid, cylindrical tube. **07**
(b) Write a short note on blood plasma. **07**
- Q.4** (a) Write short notes on stenosis, Aneurysm and Thrombosis. **07**
(b) Write short notes on Leukocytes and Monocytes. **07**
- OR**
- Q.4** (a) Explain structure of heart in detail with neat diagram. **07**
(b) Explain types of arteries in detail. **07**
- Q.5** (a) Write short notes on cardiac muscles and myocardial diseases. **07**
(b) Explain the modeling of pulsatile flow in rigid tubes with Womersley Solution. **07**
- OR**
- Q.5** (a) Write a short note on pressure in the heart. **07**
(b) Explain the modeling of pulsatile flow in rigid tubes with Fry Solution. **07**
