Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. SEMESTER III–EXAMINATION (Remedial)– WINTER 2015

Subject code: 733102 **Date: 07/12/2015**

Subject Name: Cardiovascular Mechanics

Time: 2:30 PM to 5:00 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)**	Write a short note on anatomy and physiology of heart.	**07**
	(b)	What do you mean by non-Newtonian material? Explain constitute model that exhibit blood characteristics.	**07**
Q.2	**(a)**	Explain the structure of human cardiac muscle.	**07**
	(b)	Explain Poiseuille's law with proper assumptions.	**07**
		OR	
	(b)	Derive Navier's stoke equations for incompressible, newtonian fluids.	**07**
Q.3	**(a)**	Describe diagrammatically and mathematically, flow through mitral valve.	**07**
	(b)	Write a short note on Arrhythmia and myocardial diseases.	**07**
		OR	
Q.3	**(a)**	Explain electrical analog model of flow in a tube with mathematical equations.	**07**
	(b)	Write a short note on heart valve diseases.	**07**
Q.4	**(a)**	Explain Cardiac cycle in detail.	**07**
	(b)	Explain the modeling of pulsatile flow in rigid tubes with Wormersley Solution.	**07**
		OR	
Q.4	**(a)**	Write a short note on blood plasma.	**07**
	(b)	Explain the modeling of pulsatile flow in rigid tubes with Fry Solution.	**07**
Q.5	**(a)**	Explain types of arteries in detail.	**07**
	(b)	Write a short note on heart valves.	**07**
		OR	
Q.5	**(a)**	Explain technique for intra-vascular blood pressure measurement.	**07**
	(b)	Write a short note on heart sound.	**07**

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