Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2713110 **Date:06/01/2017**

Subject Name: Advance Biomaterials

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)**	Explain any one material surface analysis technique.	**07**
	(b)	Define or Explain following terms • Elastic modulus • Wound Kinetics • hydrogel	**07**
Q.2	**(a)**	Give name of any four polymers with their applications and structure of repeating units.	**07**
	(b)	Write a short note on stainless steels and their alloys with their medical applications.	**07**
		OR	
	(b)	Explain a brief summary of tissue responses to implants.	**07**
Q.3	**(a)**	Explain behavior of surface reactive ceramics. Give composition of any such ceramics.	**07**
	(b)	Explain steam sterilization process with their mechanism of action.	**07**
		OR	
Q.3	**(a)**	Explain working of Electron Beam Sterilization technique.	**07**
	(b)	Explain biocompatibility assessment of implants in vitro and in vivo.	**07**
Q.4	**(a)**	What is blood compatibility? Why measure blood compatibility?	**07**
	(b)	Explain engineering aspects of biomaterial used for Upper Extremities applications.	**07**
		OR	
Q.4	**(a)**	Explain protein and cell interactions with biomaterials.	**07**
	(b)	What is Biodegradability? Enlist and explain factors affecting biodegradation Phenomena.	**07**
Q.5	**(a)**	Write a short note on technical aspects of Artificial heart valves design.	**07**
	(b)	Write a short note on legal aspects of Biomaterials Implants /Devices.	**07**
		OR	
Q.5	**(a)**	Discuss role of Biomaterials in Drug delivery system.	**07**
	(b)	Write a brief note on magnetic particles for biomedical applications	**07**

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