Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VI Examination-Nov/Dec-2011

Subject code: 162104 **Date: 28/11/2011**
Subject Name: Advance Materials and Applications
Time: 10.30 am -1.00 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)**	What is stainless steel? Which are important properties of stainless steel? Compare Austenitic S.S. and Martensitic S.S.	**09**
	(b)	Short note on Hadfield steel	**05**
Q.2	**(a)**	What are Aerospace Materials? List important properties required in Aerospace materials.	**07**
	(b)	Discuss Ni- hard Cast iron.	**05**
	(C)	Write Physical properties of Nano Material.	**02**
		OR	
	(b)	What are different Techniques used for producing metallic glasses? Explain High pressure die casting method.	**07**
Q.3	**(a)**	What is Super alloys? What are different properties of Super alloys. Write properties and application of Fe based super alloys.	**07**
	(b)	What are shape memory alloys? Write properties and application	**07**
		OR	
Q.3	**(a)**	Short note on Cryogenic materials	**07**
	(b)	What are Aerospace Materials? List important properties required in Aerospace materials.	**07**
Q.4	**(a)**	What is Biocompatibility? What are different properties required in Biomaterials. List out applications of Biomaterials.	**07**
	(b)	Compare Semiconducting and Superconducting materials	**07**
		OR	
Q.4	**(a)**	Write properties and applications of Tool steel	**04**
	(b)	Short note on TRIP steel	**04**
	(c)	Compare crystalline alloys with metallic glasses	**06**
Q.5	**(a)**	What is Nano material? Write note on carbon Nano tube.	**07**
	(b)	Compare Electro-rheological fluid and Magneto-rheological fluid	**07**
		OR	
Q.5	**(a)**	Short note on Ausformed steel	**07**
	(b)	Write in detail about Ti and its alloys	**07**

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