Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2143903 **Date:03/06/2016**

Subject Name:Elements of Material Science

Time:10:30 AM to 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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Define diamagnetic materials.	
	2	Give the name of memory devices.	
	3	Write the full name of OLED.	
	4	Give the definition of CMR.	
	5	Define photoconductivity.	
	6	What is ionic conductivity?	
	7	Define diamagnetism.	
	8	Classify the conductivity of materials.	
	9	Define the GMR.	
	10	Define thermal shock.	
	11	Write any one remedies of thermal shock.	
	12	Draw the figure of stress in materials.	
	13	Give the latest application of OLED.	
	14	What is metallic conductivity?	
Q.2	**(a)**	What is Piezoelectricity?	**03**
	(b)	Explain in short ferroelectricity.	**04**
	(c)	Write down a short note on Magnetic Bubble Memory.	**07**
		OR	
	(c)	Write a short note on Colossal Magneto Resistance with its applications.	**07**
Q.3	**(a)**	Explain true stress in nanomaterials.	**03**
	(b)	Explain the role of composition in the material.	**04**
	(c)	Write down a short note on GMR devices.	**07**
		OR	
Q.3	**(a)**	Explain true strain in nanomaterials.	**03**
	(b)	Explain the role of structure in materials.	**04**
	(c)	Write a short note on polymer-based OLED.	**07**
Q.4	**(a)**	Give the application of thermal conductivity.	**03**
	(b)	Write a short note on thermal conductivity.	**04**
	(c)	Write a short note on conductivity in nanoscale devices.	**07**
		OR	
Q.4	**(a)**	Give the brief detail of Photoluminescence.	**03**
	(b)	What is Photoconductivity and explain in short.	**04**
	(c)	What is the difference between Ionic Conductivity and Metallic Conductivity?	**07**
Q.5	**(a)**	Explain in short Diamagnetism.	**03**
	(b)	Write down different applications of Nanomagnetism.	**04**

	(c)	Give the difference between GMR and CMR in memory devices.	**07**
		OR	
Q.5	**(a)**	What is Yielding?	**03**
	(b)	Explain Time Depending Deformation?	**04**
	(c)	Write a short note on Ferromagnetism with necessary applications.	**07**

****