Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(New) • EXAMINATION – WINTER 2016

Subject Code:2153904 Date:22/11/2016

Subject Name:Elements of Nanoscience and Technology-II

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	Give the chemical formula of silver halide.	
	2	Write he full form of OLED.	
	3	Give any one application of zeolite.	
	4	What is agglomeration?	
	5	Which materials are used in sun scream?	
	6	Write any one application of carbon nanotube.	
	7	Which nanomaterials are used as coating in cutting tools?	
	8	Give full form of EPD.	
	9	Write down most favorable gas for super critical fluid.	
	10	Write down the size of micro porous materials.	
	11	Write down the size of maso porous materials.	
	12	_____ is used to change color in smart sun glasses?	
	13	Are surface energy and surface tension same in liquid?	
	14	In case of non-wetting the surface contact angle is _____.	
Q.2	**(a)**	What do you mean by nano membranes?	**03**
	(b)	Discuss grain boundaries in nanomaterials.	**04**
	(c)	Write a short note on quantum confinement and tunneling in nanomaterials.	**07**
		OR	
	(c)	Describe effect of size and sharp on materials.	**07**
Q.3	**(a)**	Define surface effects in nanomaterials?	**03**
	(b)	Discuss physical properties of nanomaterials.	**04**
	(c)	Write a short note on electrophoretic deposition.	**07**
		OR	
Q.3	**(a)**	What are smart glasses?	**03**
	(b)	Discuss nonporous materials.	**04**
	(c)	Write a short note on functional surface and interface.	**07**
Q.4	**(a)**	What is the important contact angle of in hydrophobic surface?	**03**
	(b)	Discuss super critical fluids.	**04**
	(c)	Write applications of nonporous materials.	**07**
		OR	
Q.4	**(a)**	Describe applications of nano membrane.	**03**
	(b)	Discuss transparent conducting oxides.	**04**
	(c)	Write a short note on electrochemical deposition.	**07**
Q.5	**(a)**	What is throw power in synthesis of nanomaterials?	**03**
	(b)	Discuss super hydrophobic surfaces.	**04**
	(c)	Write a short note on template based nanosynthesis.	**07**
		OR	
Q.5	**(a)**	What is coalescence temperature?	**03**
	(b)	Describe smart sun glass.	**04**
	(c)	Write a short note on electro-spinning for fiber formation.	**07**

****