Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2133903 **Date:06/01/2017**

Subject Name:Synthesis of Nanomaterials-I

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 3-D nanostructure.	
	2	Write full form of PVD.	
	3	Draw the structure of 2-D nanomaterial.	
	4	What is the top-down approach?	
	5	Define 1-D Nanomaterials.	
	6	Write examples of 0-D nanomaterial.	
	7	Define nanocrystalline ceramics.	
	8	Define Bottom –up approach.	
	9	What is Nanolayer?	
	10	Write a full form of SWCNT.	
	11	Define quantum confinement effect.	
	12	Give the name of the technique of bottom approach.	
	13	Define the semiconductor nanomaterials.	
	14	Define Nanomagnets.	
Q.2	**(a)**	Explain the concept of nano using surface area to volume ratio.	**03**
	(b)	Explain Diamond CVD	**04**
	(c)	Explain safety of Nanomaterials.	**07**
		OR	
	(c)	Explain storage issue of Nanomaterials.	**07**
Q.3	**(a)**	Give the mechanism of electroplating.	**03**
	(b)	Explain the tin plating technique.	**04**
	(c)	Explain solid-gas reaction.	**07**
		OR	
Q.3	**(a)**	Explain decomposition.	**03**
	(b)	Explain quantum confinement effect on Nano materials.	**04**
	(c)	Classify Nanomaterial on the basis of shape and size.	**07**
Q.4	**(a)**	Give the classification of CVD.	**03**
	(b)	Give the difference between nanomaterial and traditional material.	**04**
	(c)	Explain Nanoscale effect on chemical properties of materials.	**07**
		OR	
Q.4	**(a)**	Discus the top-down approach in detail.	**03**
	(b)	Write in brief CVD for metal nitride.	**04**
	(c)	Explain CVD for Semiconductor and metal Oxides.	**07**
Q.5	**(a)**	Write in brief bottom-up approach.	**03**
	(b)	Discus preparation of Nano system.	**04**
	(c)	Explain solid state reaction.	**07**
		OR	

Q.5	**(a)**	Discus dehydration reaction.	**03**
	(b)	Explain Metal CVD	**04**
	(c)	Explain the synthesis method for a top-down approach.	**07**

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