Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2015

Subject Code:2133903 **Date:29/12/2015**

Subject Name: Synthesis of Nanomaterials - 1

Time: 2:30pm to 5:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1		Give the answer of question in short	**14**
	1.	Define 0-D Nano materials.	
	2.	Write full form of CVD.	
	3.	Define 1-D Nano materials.	
	4.	What is top-down approach?	
	5.	Define 2-D Nano materials.	
	6.	Write examples of 3-D Nano materials.	
	7.	Define Nano Crystalline Ceramics.	
	8.	Define Bottom –up approach.	
	9.	What is Nano layer?	
	10.	Write a full form of CNT.	
	11.	Define quantum confinement effect.	
	12.	Give the name of technique of bottom approach.	
	13.	Define the semiconductor nanomaterials.	
	14.	Define Nano magnets.	
Q.2	**(a)**	Discus in brief surface area to volume ratio.	**03**
	(b)	Explain quantum confinement effect on Nano materials.	**04**
	(c)	Classify Nanomaterials on the basis of shape and size.	**07**
		OR	
	(c)	Explain Nano scale effect on chemical properties of materials	**07**
Q.3	**(a)**	Discus the top-down approach in detail.	**03**
	(b)	Explain the tin plating technique.	**04**
	(c)	Explain safety of Nano materials.	**07**
		OR	
Q.3	**(a)**	Write in brief bottom-up approach.	**03**
	(b)	Discus preparation of Nano system.	**04**
	(c)	Explain storage issue of Nano materials.	**07**
Q.4	**(a)**	Discus dehydration reaction.	**03**
	(b)	Explain Metal CVD	**04**
	(c)	Explain solid state reaction.	**07**
		OR	
Q.4	**(a)**	Explain decomposition.	**03**
	(b)	Explain Diamond CVD	**04**
	(c)	Explain solid gas reaction.	**07**
Q.5	**(a)**	Describe Nano crystalline ceramics.	**03**
	(b)	Write in brief CVD for metal nitride.	**04**
	(c)	Explain CVD for Semiconductor and metal Oxides.	**07**
		OR	

Q.5	**(a)**	Discus Semiconductor Nano particle	**03**
	(b)	Explain metal Nano particles	**04**
	(c)	Write a short notes on Nano tubes	**07**

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