Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2143904 **Date:06/06/2016**

Subject Name:Synthesis of Nanomaterials-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	What is resist?	
	2	In which method we grow the epitaxial film?	
	3	How much minimum vacuum required for PLD.	
	4	When we use lithography?	
	5	Give any one example of Resists.	
	6	Write the full name of SPM.	
	7	Write the condition for plasma generate in PVD.	
	8	Which type of gas we use for vacuum.	
	9	Draw the figure of positive resist.	
	10	Write the uses of e-beam.	
	11	What is the meaning of synthesis?	
	12	Can we maintain the thickness in CVD?	
	13	Write some word about self-alignment.	
	14	Give the example of any one resist.	
Q.2	**(a)**	Write the application of PLD.	**03**
	(b)	Give the advantage and disadvantage of PLD.	**04**
	(c)	Explain pulse laser deposition.	**07**
		OR	
	(c)	Classify the PVD and explain in short.	**07**
Q.3	**(a)**	Write the advantage of CVD	**03**
	(b)	Differentiate the CVD and PVD	**04**
	(c)	Explain Physical vapor deposition.	**07**
		OR	
Q.3	**(a)**	Define the three vacuum system.	**03**
	(b)	Explain the any one sputtering technique.	**04**
	(c)	Describe self-narrowing atomic beam pantography.	**07**
Q.4	**(a)**	How to maintain deposition rate in PVD and CVD.	**03**
	(b)	How to maintain the thickness in PVD and CVD.	**04**
	(c)	Explain CVD.	**07**
		OR	
Q.4	**(a)**	Write the advantage and disadvantage of RF plasma chemical method	**03**
	(b)	Write the application of RF plasma chemical method.	**04**
	(c)	Explain RF plasma chemical method	**07**
Q.5	**(a)**	Explain the interaction of electron in solid with neat diagram.	**03**
	(b)	Explain the physics and chemistry of resists.	**04**

	(c)	Describe SPM with electron beam lithography.	**07**
		OR	
Q.5	**(a)**	Write in detail positive and negative resists.	**03**
	(b)	Explain the proximity effect in detail?	**04**
	(c)	Describe the Electron beam lithography	**07**

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