Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2173903 **Date:23/11/2016**

Subject Name:Thin Film Technology

Time:10.30 AM to 1.00 PM **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	What are thin films and explain the role of thin films in devices.	**07**
	(b)	Discuss in detail the sample data interpretation using XRD	**07**
Q.2	**(a)**	Explain the principle, construction and working of Chemical Vapour Deposition technique with necessary diagram.	**07**
	(b)	Explain fabrication of CNT using Pulsed laser deposition technique with necessary diagram. Define Physical Vapour Deposition and its types, Explain in detail DC sputtering technique with required diagram.	**07**
		OR	
	(b)	Explain fabrication of CNT using Electric arc deposition technique with necessary diagram.	**07**
Q.3	**(a)**	Elucidate the process of Sol-gel synthesis and state the advantages of this technique. Draw necessary diagram.	**07**
	(b)	Describe the study of surface analysis of thin films using AFM	**07**
		OR	
Q.3	**(a)**	Discuss in detail the sample analysis using UV-vis Spectroscopy	**07**
	(b)	Explain the working of Contact & Non- Contact Profilometer, along with its surface parameters	**07**
Q.4	**(a)**	Discuss the application of thin film technology in the field of electronics.	**07**
	(b)	Deliberate how nanotechnology has improved the food packaging and processing industry.	**07**
		OR	
Q.4	**(a)**	Describe the application of thin film technology in Automobile sector.	**07**
	(b)	Explain briefly the application of thin films in Biomedical industry.	**07**
Q.5	**(a)**	Write a short note on Optical properties of thin films.	**07**
	(b)	Make a note on Magnetic properties of nanomaterials.	**07**
		OR	
Q.5	**(a)**	Justify how electrical properties of thin films are enhanced.	**07**
	(b)	Explain in detail the thermal properties of nanomaterials.	**07**

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