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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 3133904

Date: 28/11/2019

Subject Name: Characterization Of Nanomaterials-I

Time: 02:30 PM TO 05:00 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	(a) Define X ray diffractions.	03
	(b) Explain Lau Conditions & Lau Method in short.	04
	(c) Explain powder method in brief.	07
Q.2	(a) What is Data Handling and Processing.	03
	(b) Write working principle of X-Ray photoelectron Spectroscopy.	04
	(c) Write short notes on Scanning Electron Microscopy (SEM).	07
	OR	
	(c) Write Working and principle of Energy Dispersive X-Ray Analysis (EDAX).	07
Q.3	(a) Define Auger Electron.	03
	(b) Write the short notes on image mode.	04
	(c) Define specimen preparation pre thinning and final thinning steps.	07
	OR	
Q.3	(a) Define modes of operations	03
	(b) Write Advantages, disadvantages of Microscopy.	04
	(c) Explain brief application of microscopy.	07
Q.4	(a) What is the importance of characterization.	03
	(b) Types of Ellipsometry define in short.	04
	(c) Write working, principle of Transmission Electron Microscopy.	07
	OR	
Q.4	(a) Define secondary electrons and primary electrons.	03
	(b) Define the parameter in microscopy Image Formation and Resolution, Depth of Field	04
	(c) Explain working, principle and construction of Atomic Force Microscopy	07
Q.5	(a) What is x-ray define it.	03
	(b) Write short notes on Backscattered Electrons.	04
	(c) Write working, principle and construction of Ellipsometry.	07
	OR	
Q.5	(a) Explain in short Transducers.	03
	(b) Explain braggs law with ray diagram.	04
	(c) Draw ray diagram of light microscopy explain working principle.	07
