

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2173905****Date: 03/12/2018****Subject Name: Electrical and Optical properties of Nanomaterials****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	(a) What is the importance of electrical transport property in various sector?	03
	(b) Illustrate the conduction in materials with reference to the AC	04
	(c) Explain four probe and two probe method.	07
Q.2	(a) Define why Nano thin film possess a variation in electrical transport property.	03
	(b) Write a short note on DC conduction of materials.	04
	(c) Write applications of Nano thin film with a properties of its thickness	07
	OR	
Q.3	(c) Explain AC conductivity of nano materials.	07
	(a) Opto-electric properties of thin film in industry, illustrate.	03
	(b) Is sintered temperature affect the grain size?	04
	(c) Explain what type of properties is changed before and after of the temperature apply.	07
	OR	
Q.3	(a) Define Grain and grain boundary with reference of size reduction.	03
	(b) Microstructure effect on thin film, explain it.	04
	(c) Explain grain size effect on transport property nano materials.	07
Q.4	(a) What exactly happened when light interact with materials.	03
	(b) Explain roll of optical property of thin film in LED.	04
	(c) Explain how optical and electrical property differentiate in nano material	07
	OR	
Q.4	(a) Give photo catalytic effect definition with example.	03
	(b) Explain difference between oxide materials and non-oxide material's Properties in term of photo-catalytic effect.	04
	(c) Write short note on photo-catalytic property of nano materials.	07
Q.5	(a) Give application of optical property of thin film in defense sector.	03
	(b) Give the application of optical property of thin film in space technology.	04
	(c) Find out what are the end points (limitation) of thick film.	07
	OR	
Q.5	(a) Give 4 to 5 name of thin film synthesis technique.	03
	(b) Explain particle size effect on optical property.	04
	(c) Write a note on sensitivity of nano thin film.	07
