Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: EE206

Course Name: MATERIAL SCIENCE (EE)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks

1		Define polarization and what are different polarization processes?	(5)
2		Explain the properties of Mica and Ceramics.	(5)
3		List any five characteristics of SF_6.	(5)
4		Explain Curie Wiess law.	(5)
5		Explain superconductivity and its applications.	(5)
6		What are the materials used for solar cells? Explain.	(5)
7		Write short notes on bio materials.	(5)
8		What is photoelectron spectroscopy? Explain.	(5)

PART B

Answer any two questions, each carries 10 marks

9	a)	Derive Claussius-mosotti relation.	(5)
	b)	What are compound semiconductors?	(5)
10	a)	Differentiate organic and inorganic insulators.	(4)
	b)	Why SF_6 gas is used in circuit breakers?	(3)
	c)	What are the insulating materials used in capacitor materials?	(3)
11	a)	Explain different types of polarizations in dielectrics.	(6)
	b)	What do you mean by insulating materials? Explain its classification based on temperature.	(4)

PART C

Answer any two questions, each carries 10 marks

12	a)	Explain streamer theory of breakdown in gases.	(6)
	b)	Define suspended particle theory.	(4)
13	a)	Explain properties and applications of iron.	(6)
	b)	Explain the applications of magnetic materials in electrical machines.	(4)
14	a)	How breakdown occur in vacuum insulators? Explain any one mechanism.	(6)

b) Explain transformer oil treatment method. (4)

PART D

Answer any two questions, each carries 10 marks

15 Explain

1. Antireflection coating
2. Solar selective coating (10)
3. Cold mirror coating

16 a) Explain atomic absorption spectroscopy. (5)

b) Explain the different characteristic properties of superconductors. (5)

17 Explain different types of electron microscopy and their applications. (10)

****