D   B4D0396

Total Pages: 1

Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017
Course Code: EE206
Course Name: MATERIAL SCIENCE (EE)

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions. Each carries 5 marks.

1	What is meant by electrical and thermal conductivity of metals.	(5)
2	What is ferroelectricity. Give at least two examples.	(5)
3	What are the Townsend's criterion for spark?	(5)
4	Why the magnetisation lost, when the ferromagnetic materials are heated above a certain temperature.	(5)
5	List the merits and demerits of solar cells.	(5)
6	Discuss between solar cell and a solar panel.	(5)
7	What are the applications of optical microscope.	(5)
8	Write short notes on biomaterials.	(5)

PART B
Answer any two questions. Each carries 10 marks.

9		What is meant by polarization in a dielectric. Explain how the variation of dielectric constant with frequency.	(10)
10		Describe the application of various insulating materials used in the following power apparatus: -	(10)
		i) Power transformer ii) Circuit breaker	
		iii) Power iv) Rotating machines	
11	a)	What is Dielectric constant.	(2)
	b)	Explain dielectric loss and loss tangent with the help of a phasor diagram.	(6)
	c)	Mention the factors, which affect the dielectric loss of an insulating material.	(2)

PART C
Answer any two questions. Each carries 10 marks.

12	a)	Explain Townsend's first and second ionisation coefficient.	(10)
13	a)	Discuss the application of magnetic materials used in electrical machines, instruments and relays. Justify with reasons.	(10)
14	a)	Explain the suspended particle mechanism in dielectric breakdown.	(7)
	b)	what is intrinsic breakdown?	(3)

PART D
Answer any two questions. Each carries 10 marks.

15	a)	Explain the mechanism of electricity production in solar cells with construction?	(10)
16	a)	What are the different types of electron microscopy. Explain each of them?	(10)
17	a)	List the factors which affect the characteristic properties of superconductor. Also discuss at least two applications of superconductors.	(10)

****