Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3160923 Date:06/06/2022

Subject Name:Electrical Materials

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.**
4. **Simple and non-programmable scientific calculators are allowed**

			Marks
Q.1	**(a)**	Give classification of magnetic material and explain in brief.	**03**
	(b)	Explain effect of temperature on semiconductor.	**04**
	(c)	Compare Type-I and Type-II superconductor.	**07**
Q.2	**(a)**	What are the properties of good conductors?	**03**
	(b)	Discuss properties of high resistivity material.	**04**
	(c)	Explain difference between hard and soft magnetic material.	**07**
		OR	
	(c)	Properties of superconductor.	**07**
Q.3	**(a)**	Explain P-type and N-type semiconductor material.	**03**
	(b)	What is a super conductor? Explain the applications of super conducting materials.	**04**
	(c)	Write short notes on permanent magnet materials.	**07**
		OR	
Q.3	**(a)**	What is dielectric? Why it is used in capacitors?	**03**
	(b)	Name four natural insulating materials. Mention their most important properties and their application.	**04**
	(c)	Write short notes on: mechanical and electrical properties of dielectric materials.	**07**
Q.4	**(a)**	What are the various thermal properties of insulating materials?	**03**
	(b)	Explain the difference between diamagnetic and paramagnetic materials.	**04**
	(c)	Write short notes on Radioactive materials	**07**
		OR	
Q.4	**(a)**	Discuss transformer oil as insulating material.	**03**
	(b)	Explain the difference between hard and soft magnetic materials.	**04**
	(c)	Explain the factors affecting the change in resistivity of the semiconducting materials.	**07**
Q.5	**(a)**	Compare Copper and Aluminum conducting materials.	**03**
	(b)	Write short notes on Refractory materials.	**04**
	(c)	Write short notes on losses in magnetic materials.	**07**

OR

Q.5	**(a)**	What do you mean by critical temperature in super conductivity?	**03**
	(b)	Write short notes on Galvanizing materials.	**04**
	(c)	Explain intrinsic and extrinsic semiconductors.	**07**

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