Seat No.:	Enrolment No
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-III (NEW) - EXAMINATION - SUMMER 2017** 

Subject Code: 2130506 Date: 29/05/2017

**Subject Name: Chemical Engineering 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.

			MARKS
Q.1		Short Questions	14
	1	Discuss Rutherford's model of atom	1
	2	What is unit cell	1
	3	Define bond energy	1
	4	Which are the electrical properties of materials	1
	5	Define elasticity and resilience	1
	6	State concept of powder metallurgy	1
	7	State importance of precipitation hardening	1
	8	Discuss mechanism behind corrosion	1
	9	Explain anisotropy in engineering materials	1
	10	What are ceramics?	1
	11	Define types of crystal structures	1
	12	Explain point defect in crystal	1
	13	Define stress and strain	1
	14	What does miller indices suggest?	1
<b>Q.2</b>	(a)	Explain what is ferroelectricity	03
	<b>(b)</b>	Write a note on conductors	04
	(c)	Enlist various crystal defects and explain line imperfections in detail.	07
		OR	
	(c)	Define magnetization and classify magnetic materials.	07
<b>Q.3</b>	(a)	Discuss basic process of powder metallurgy	03
	<b>(b)</b>	State different types of Oils and their properties	04
	(c)	Discuss methods of determining crystal structures and explain powder method in detail.  OR	07
Q.3	(a)	State different mechanical properties of solids	03
Q.J	(b)	Write a note on superconductivity	03
	(c)	State different methods of heat treatment, its principle	07
	(C)	and applications	07
<b>Q.4</b>	(a)	Write a note on Abrasives	03
•	<b>(b)</b>	Write a note on Annealing as thermal treatment of steels	04
	(c)	Classify in detail different metallic materials.	07
	` '	OR	
<b>Q.4</b>	(a)	What are nano- materials	03
	<b>(b)</b>	Write a note on processing and application of ceramics	04
	(c)	Explain merits and demerits of powder metallurgy	07

Q.5	(a)	Classify polymers	03
	<b>(b)</b>	Write a note on factors influencing corrosion	04
	(c)	Methods of control and prevention of corrosion	07
		OR	
(	(a)	What are characteristics of composite materials	03
	<b>(b)</b>	Write a note on paints and varnishes	04
	(c)	Explain thermo setting plastic polymers with their applications.	07

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