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

**BE - SEMESTER-III(New) • EXAMINATION - WINTER 2016** 

Subject Code:2132101 Date:02/01/2017

**Subject Name: Elements of Metallurgy** 

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.

	•	5. Figures to the right indicate full marks.	MARKS	
Ο 1		Chart Overtions		
Q.1	1	Short Questions What is Metallurgy and Material Science?	<b>14</b> 1	
	2	Define Hardness.	1	
	3	Define fatigue.	1	
	4	What is Ductility?	1	
	5	Define composites materials.	1	
	6	What are polymers?	1	
	7	Define refractories.	1	
	8	Define soldering.	1	
	9	Define Foundry.	1	
	10	Define Resilience.	1	
	11	Enlist different metal forming operations.	1	
	12	Define toughness.	1	
	13	Define Corrosion.	1	
	14	Define wear.	1	
<b>Q.2</b>	(a)	List out metallurgical and materials industries in India.	03	
	<b>(b)</b>	Give detailed classification of Engineering Materials	04	
	(c)	Give the classification of composites. Describe about metal matrix composites	07	
OR				
	(c)	Discuss structure and property relation with suitable examples.	07	
Q.3	(a)	Discuss briefly about cement.	03	
	<b>(b)</b>	Describe structure of ceramics.	04	
	(c)	Give the classification of polymers. Explain Polymerization mechanisms.	07	
OR				
<b>Q.3</b>	(a)	Describe properties of ceramics	03	
	<b>(b)</b>	Draw flow diagram of extraction of copper.	04	
	<b>(c)</b>	Differentiate in elastic and plastic deformation with suitable example.	07	
<b>Q.4</b>	(a)	Explain different area defects in crystals.	03	
	<b>(b)</b>	Explain different steps required in foundry practice.	04	
	<b>(c)</b>	What is rolling? Discuss briefly about rolling mills.	07	
OR				
<b>Q.4</b>	(a)	Short note on Synthetic resin.	03	
	<b>(b)</b>	Draw flow diagram of Aluminum extraction.	04	
	<b>(c)</b>	Briefly explain about production of Pig iron in Blast furnace.	07	
Q.5	(a)	What do you mean by powder metallurgy? Discuss advantages and limitations of	03	
	(L.)	powder metallurgy.	0.4	
	<b>(b)</b>	Discuss forging in brief.	04	
	<b>(c)</b>	What are different corrosion protection techniques? Explain any one in brief.	07	
0.5	OR			
Q.5	(a)	Explain in brief about extrusion.  Differentiate in wet and dry corrosion. List out types of corrosion.	03	
	(b)	Discuss the causes and protection of wear.	04 07	
	(c)	**************************************	U/	

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