

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019****Subject Code: 2132101****Date: 04/06/2019****Subject Name: Elements of Metallurgy****Time: 02:30 PM TO 05:00 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	(a) Give classification of Engineering materials with its examples	03
	(b) Define 'Metallurgy'. What are the important fields of Metallurgical Engineering?	04
	(c) Briefly explain structure property relationship between Metals, Ceramics and Polymers.	07
Q.2	(a) Draw crystallographic plane and direction. $(1\ 2\ 1^-)$ $[1\ 0\ 3]$.	03
	(b) Explain SMAW process.	04
	(c) What is deformation? Differentiate in elastic and plastic deformation.	07
	OR	
	(c) Explain the Criteria for selection of materials for engineering applications.	07
Q.3	(a) Enlist important Properties of Ceramics.	03
	(b) Give a detailed Classification of Composites.	04
	(c) Define and classify refractory. Discuss the general requirements of a refractory material with proper examples.	07
	OR	
Q.3	(a) Differentiate between Ductility and malleability.	03
	(b) Give properties and applications of Synthetic resins.	04
	(c) Differentiate between addition and condensation polymerization.	07
Q.4	(a) Write short note on glasses	03
	(b) Describe the stages of manufacturing of Clay products.	04
	(c) What is imperfection? Discuss different crystals imperfections in brief.	07
	OR	
Q.4	(a) What is ceramic? Describe the Structure and Properties of Ceramics.	03
	(b) Give the definition of 'Metal'. Draw stress –strain curve for mild steel & cast iron, & highlight the difference.	04
	(c) What do you mean by powder metallurgy? Discuss advantages, limitations and applications of powder metallurgy.	07
Q.5	(a) Write short note manufacturing of cement..	03
	(b) Differentiate in wet and dry corrosion. List out types of corrosion.	04
	(c) What is metallic coating? Explain the mechanism of corrosion protection by noble coating and active coating with suitable examples.	07
	OR	
Q.5	(a) Explain the Wire drawing methods.	03
	(b) Explain the principle of production of iron .	04
	(c) Describe status of metallurgical and materials industry in India	07
