Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER – III • EXAMINATION – SUMMER- 2017

Subject Code: 3335503 **Date: 01-05 -2017**

Subject Name: Material & 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.**
4. **Use of programmable & Communication aids are strictly prohibited.**
5. **Use of only simple calculator is permitted in Mathematics.**
6. **English version is authentic.**

Q.1	(a)	List different mechanical properties of material and explain any five properties	**07**
	(b)	What is alloy steel? Explain advantage and limitation of alloy steel.	**07**
Q.2	(a)	Explain effect of different alloying element on properties of steel.	**07**
	(b)	Explain different factors affecting selection of materials for engineering purpose	**07**
		OR	
	(b)	Write brief note on H.S.L.A. steel.	**07**
Q.3	(a)	What is Brasses? List different brasses and explain chemical composition, properties and application of any two.	**07**
	(b)	Explain properties and application of Aluminum.	**07**
		OR	
Q.3	(a)	Explain different material and their requirement for high temperature service. Write applications where high temperature service material required.	**07**
	(b)	Write properties and application of Glass.	**07**
Q.4	(a)	Explain SC, BCC, FCC, HCP crystal structure of metal with neat sketch	**07**
	(b)	Define the term “Solid Solution” .Explain different types of solid solution with neat sketch.	**07**
		OR	
Q. 4	(a)	Draw neat sketch of IC diagram and write three important reactions.	**07**
	(b)	Draw neat sketch of TTT diagram.	**07**
Q.5	(a)	List different micro constituents of iron and explain them in brief.	**07**
	(b)	Explain metallurgical microscope with neat sketch.	**07**
		OR	
Q.5	(a)	Define the “heat treatment process”, classify it and explain purpose of heat treatment.	**07**
	(b)	Explain Material Test Certificate (MTC) with neat sketch	**07**

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