

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019****Subject Code: 2133403****Date: 07/06/2019****Subject Name: Engineering Materials and 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.

- Q.1** (a) What do you mean by Iron Carbon Equilibrium Diagram? Draw Line Diagram of Iron Carbon Equilibrium diagram and explain peritectic reaction. **07**
- (b) What is Solid Solution? Explain its Types. **07**
- Q.2** (a) Differentiate Annealing and Normalizing Process **07**
- (b) Draw and Explain TTT Diagram **07**
- OR**
- (c) What is the difference between Hardness and Hardenability? Explain Jominey End Quench Test for measurement of Hardenability. **07**
- Q.3** (a) Explain Types of Case Hardening Process. **07**
- (b) What is the difference between cast iron and steel? Explain Grey Cast iron with sketch. **07**
- OR**
- Q.3** (a) Explain Copper alloys. **07**
- (b) Explain effects of Mn, Si, Cr, Mo, V on Steel. **07**
- Q.4** (a) What do you mean by superconductor and explain Type 1 and Type 2 Superconductors. **07**
- (b) Differentiate thermoplastic and Thermosetting Plastic. **07**
- OR**
- Q.4** (a) Write a short note on Bio-Degradable Plastics. **07**
- (b) Write a short note on Nano-Materials. **07**
- Q.5** (a) Explain Tension Test on Materials. **07**
- (b) Explain Compression Test on Materials. **07**
- OR**
- Q.5** (a) Explain Fatigue Test on Materials. **07**
- (b) Explain Creep Test on Materials. **07**
