



Roll No

**PRESIDENCY UNIVERSITY  
BENGALURU  
SCHOOL OF ENGINEERING**

**SUMMER TERM / MAKE UP END TERM EXAMINATION**

**Semester:** Summer Term 2019

**Date:** 23 July 2019

**Course Code:** MEC 205

**Time:** 2 Hours

**Course Name:** Structure and Properties of Materials

**Max Marks:** 80

**Program & Sem :** B.Tech & IV Sem (2016 Batch)

**Weightage:** 40%

**Instructions:**

- (i) **Answer all the questions and state the assumptions if any**
- (ii) **Scientific calculators are allowed**

**Part A**

Answer **all** the Questions. **Each** question carries **five** marks. (4Qx5M=20M)

1. Name any five objectives of Heat treatment process.
2. What is Spheroidising annealing? Explain its steps.
3. What are the differences between Annealing and Normalizing?
4. What is Heat treatment? Explain various stages of Heat treatment process.

**Part B**

Answer **all** the Questions. **Each** question carries **ten** marks. (3Qx10M=30M)

5. With the neat sketch explain formation of TTT diagram of 0.8%carbon eutectoid steel.
6. What are the phases appeared in iron carbon diagram? Name any two properties of each phases.
7. Explain with neat sketch following heat treatment process
  - a) Pack carburizing
  - b) flame hardening

**Part C**

Answer **both** the Questions. **Each** question carries **fifteen** marks. (2Qx15M=30M)

8. Explain with neat sketch Jominy end quench test and discuss how this test helpful to check the hardenability of metals.
9. Draw a neat sketch of Iron carbon diagram. Label all phases, temperatures and explain three invariant reactions occurring in iron carbon equilibrium diagram.

