

P P SAVANI UNIVERSITY

Third Semester of B. Tech. Examination

November-December 2021

SECH2040: Chemical Engineering Materials and Metallurgy

17.12.2021, Friday

Time: 09:00 a.m. To 11:30 a.m.

Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures with **Pencil** wherever required.
4. Use of scientific calculator is allowed.

SECTION - I

- Q - 1 (a) Define following terms, [05]
(i) Metals, (ii) Non-metals, (iii) Ceramics, (iv) Elastomers, and (v) Polymers.
- Q - 1 (b) List the merits and demerits of Schottky and Frenkel defect. [05]
- Q - 2 (a) Draw the phase diagram for Fe-C binary system. [05]
- Q - 2 (b) State the limitations and applications of phase diagrams. [05]
- Q - 3 (a) Explain the term phase transformation. Also draw time, temperature transformation (TTT) diagram. [05]
- Q - 3 (b) State different destructive testing techniques and explain any one in detail. [05]

OR

- Q - 3 (a) Explain the concept of cooling curve and draw cooling curves for metals and alloys. [05]
- Q - 3 (b) State different non-destructive testing techniques and explain any one in detail. [05]

SECTION - II

- Q - 1 (a) State the different plastic forming and fabricating methods and explain any two. [05]
- Q - 1 (b) Write a short note on PVC plastic along with its properties and applications. [05]
- Q - 2 (a) Explain the need of seasoning of wood. List the techniques used in this process. [05]
- Q - 2 (b) Define elastomers. List the different types of elastomers with suitable examples. [05]
- Q - 3 (a) Express your views on fiber reinforced polymers. [05]
- Q - 3 (b) State any five applications of nanomaterial. [05]
- OR**
- Q - 3 (a) Express your views on composite materials. [05]
- Q - 3 (b) Draft a detailed report on nanostructured materials. [05]
