

CBCS Scheme

USN

--	--	--	--	--	--	--	--	--	--

16MAR41

Fourth Semester M.Tech. Degree Examination, June/July 2018 Advanced Materials and Processing

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Mention detailed classification of Ferrous and nonferrous metals? Explain any two from each classification. (10 Marks)
b. Distinguish between Thermoset and thermoplastic polymers. (06 Marks)

OR

- 2 a. Briefly describe ionic, covalent, metallic and Vander Wall's bonds. (10 Marks)
b. Write a short note on cold working, recrystallization and hot working. (06 Marks)

Module-2

- 3 a. Elaborate the steps involved to construct T.T.T diagram. (08 Marks)
b. Describe the effect of alloying elements on steels. (08 Marks)

OR

- 4 a. Explain the heat treatment processes with respect to ferrous alloys. (08 Marks)
b. Discuss the composition properties and applications of nonferrous alloys. (08 Marks)

Module-3

- 5 a. Define polymerization. Discuss the mechanism of polymerization by chain growth process. (08 Marks)
b. Discuss the properties and applications of polymers? (08 Marks)

OR

- 6 a. Mention the functional and structural classification of ceramics. (08 Marks)
b. What are Refractories? Mention its characteristics properties. (08 Marks)

Module-4

- 7 a. Define composite materials. Give the detailed classification of composite materials. Mention suitable examples for each class. (08 Marks)
b. Obtain expression for relationship between volume fraction and mass fraction. (08 Marks)

OR

- 8 a. What are MMC's? Write properties, advantages and applications of MMC's. (08 Marks)
b. Write the typical applications of composite materials. (08 Marks)

Module-5

- 9 a. Explain any two processing methods of thermoset matrix composites. (08 Marks)
b. Explain schematic of the slurry impregnation process in CMM's? (08 Marks)

OR

- 10 a. What is ion beam machining? With the help of neat sketch explain working of ion beam machining. (10 Marks)
b. Mention the applications of CMC's. (06 Marks)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.