

CBCS SCHEME

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17NT71

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021 Nanocomposites and their Applications

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain about composites, composition of composites and classification based on its origin. (10 Marks)
b. Explain in detail about the need of composite materials. (10 Marks)

OR

- 2 a. Write a note on particle and fibre reinforced composites. (10 Marks)
b. Explain the carbon fibre production technique. (10 Marks)

Module-2

- 3 a. Discuss about polymer resin and its classification. (10 Marks)
b. Discuss about applications of i) PMC in aerospace industry ii) PMC in automobile industry and iii) Polymer nanocomposites. (10 Marks)

OR

- 4 a. Explain about injection moulding and reaction injection moulding. (10 Marks)
b. Explain filament winding process. (10 Marks)

Module-3

- 5 a. Write a note on reinforcements for MMCs and effect of reinforcements. (10 Marks)
b. Write a note on stir casting and squeeze casting infiltration techniques. (10 Marks)

OR

- 6 a. Explain about powder metallurgy and diffusion bonding methods of processing of MMCs. (10 Marks)
b. Write a short note on interface and interface properties. (10 Marks)

Module-4

- 7 a. Explain about engineering ceramics and discuss about the need for ceramic matrix composites. (10 Marks)
b. Write a note on Carbon – carbon composites. (10 Marks)

OR

- 8 a. Brief about CMCs and its applications. (08 Marks)
b. Discuss about Isostatic Pressing methods. (12 Marks)

Module-5

- 9 a. Brief about classification of Laminates. (10 Marks)
b. Discuss about factors affecting the mechanical performance of composites. (10 Marks)

OR

- 10 a. Briefly about compression testing of composite materials. (10 Marks)
b. Write a note on Joining of composites, classification, types of load carrying joints and requirements of the joint design. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.