

CBCS SCHEME

15NT71

USN

Seventh Semester B.E. Degree Examination, July/August 2021 Nano Composites and Their Applications

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Explain about composites, composition of composites and classification based on its origin. (10 Marks)
b. Write a short note on polymer matrix composites. (06 Marks)
- 2 a. Explain in detail about need of composite materials. (10 Marks)
b. Discuss about classification of nano materials. (06 Marks)
- 3 a. Discuss about polymer resins and its classification. (08 Marks)
b. Discuss about compression moulding with its advantages and limitations. (08 Marks)
- 4 a. Write a short note on hand lay up and spray up processing of polymer matrix composites. (08 Marks)
b. Write a note on resin transfer moulding and pultrusion. (08 Marks)
- 5 a. Brief about MMC's, its characteristics and types. (08 Marks)
b. Write a note on stir casting and squeeze casting infiltration techniques. (08 Marks)
- 6 a. Explain about powder metallurgy and diffusion bonding methods of processing of MMC's. (08 Marks)
b. Discuss about spray process, liquid infiltration and in situ reaction methods of processing of MMC's. (08 Marks)
- 7 a. Explain about Engineering ceramics and discuss about the need for ceramic matrix composites. (08 Marks)
b. Explain about oxide ceramic matrix composites. (08 Marks)
- 8 a. Brief about CMCs and mention various types of MMC's. (08 Marks)
b. Write a note on Carbon – Carbon composites. (08 Marks)
- 9 a. Brief about classification of laminates. (08 Marks)
b. Write a note on Joining of composites, Classification, types of load carrying joints and requirements of the joint design. (08 Marks)
- 10 a. Brief about compression testing of composite materials. (08 Marks)
b. Discuss about strain measurements and tensile testing of composite materials. (08 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.