

Roll No.

Total No. of Pages : 02

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M.Tech(ME) (2017 Onwards) (Sem.-3)

COMPOSITE MATERIALS

Subject Code : MTME-221

M.Code : 74997

Date of Examination : 21-12-2022

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1.
 - a) Define composites. Explain various advantages and limitations of composite materials.
 - b) What factors determine the behavior of composites? Explain these factors and relate them to general classes of composites?
2.
 - a) What is polypropylene and what is its repeat structural unit?
 - b) What is natural rubber?
3.
 - a) Define the term bulk density as associated with ceramics and polymers?
 - b) Give a comparison between elastomers and plastics?
4.
 - a) Discuss the applications of fibre reinforced composites in automobiles?
 - b) Explain the following with respect to composite processing:
 - i) Filament winding.
 - ii) Pultrusion
5.
 - a) Explain the vacuum bag moulding techniques for fabricating PMCs giving a neat sketch.
 - b) Write a detailed note on any two of the following:
 - i) Selection of base metal in MMCs.
 - ii) Particulate composites.
 - iii) Hybrid composites.

6.
 - a) What is the criterion for using discontinuous fibers in the fiber reinforced composites? What should be the aspect ratio for discontinuous fibers?
 - b) What are the characteristics of E glass?
7.
 - a) What do you mean by the term bio-materials?
 - b) Discuss the applications of composites materials in transportation and aerospace industry.
8. Write short notes on any two of the following :
 - a) Thermosetting and Thermoplastic polymers.
 - b) Basic properties of GRP, CFRP.
 - c) Production of carbon fibres.
 - d) Joining of composites.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.