Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

Ph.D in Faculty of Engineering (ME) COMPOSITE MATERIALS M.Code : 77363

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT question.
- 2. Each question carry TWENTY marks.
- 1. a) What are composite materials? How is the mechanical advantage of composite measured?
 - b) Discuss the advantages of composite over metals or alloys. Are there any drawbacks or limitations in using them?
- 2. a) Why glass fibers are the most common of all reinforcing fibers for polymer matrix composites?
 - b) What are Aramid fibers? List their salient properties, application areas and major disadvantages.
- What are various liquid state fabrication techniques for metal matrix composites (MMCs)? Explain the manufacturing of continuously reinforced MMCs by Vacuum hot pressing (VHP) method.
- 4. Explain the manufacturing of polymer composites by filament winding process. Discuss the limitations of this process.
- 5. What are various manufacturing methods for ceramic matrix composites? Explain the manufacturing of ceramic matrix composites by Powder Consolidation Process.
 - a) Using suitable sketch, explain how the internal stresses in metal matrix composites are
 - measured using diffraction method?
 - b) Discuss the applications of metallographic techniques in the context of MMCs.
- 7. a) What are the advantages of adhesive bonding over mechanical joints?
 - b) Why are the cutting tools for machining of composites coated with diamond or some other substance?

6.

8 Write short notes on :

- a) Fabrication of carbon-carbon composites by liquid infiltration process.
- b) Failure modes during machining 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.