Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech(ME) (2021 Onwards) (Sem.–3)

COMPOSITE MATERIALS

Subject Code : MTME-221

M.Code : 74997

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

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

Q1. a. What are the composites materials? How do polymer composites differ from polymer blends? Give examples.

b. What are polymer Nano composites? How do they differ from other composites? Write their advantages and disadvantages.

Q2. Draw diagrams and explain the following techniques for the fabrication of polymer composites :

a. Extrusion

b. Filament winding

Q3. a. Give comparison between crystalline and amorphous polymers.

b. What is the purpose of adding stabilizer to a polymer? Give some examples of stabilizers.

Q4. a. List the general characteristics of ceramic materials.

b. Both ceramics and metals are crystalline and contains dislocations yet ceramics have lack of ductility. Explain.

Q5. a. List the various requirement a matrix must meet.

b. Discuss the basic principle behind the use of fibrous reinforcement for composites.

Q6. a. Describe the characteristics feature of carbon fibers.

b. Why are polymer matrixes preferred over metal matrix for producing composites for structural applications?

Q7. a. What is biodegradable composites?

b. What type of composites materials is used in dental implants? Describe the requirement of dental materials.

Q8. Write short note on the following :

a. Powder metallurgy methods for composites manufacturing

b. Applications of composites in Aerospace industry

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.