

Code No: 128AW

R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, May - 2019

COMPOSITE MATERIALS

(Metallurgy and Materials Engineering)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) What is reinforcement? Give examples. [2]
- b) What is a Matrix? Give examples. [3]
- c) Write equations for isostrain and isostress. [2]
- d) List out the properties of whiskers. [3]
- e) Give examples of Metal Matrix Composites. [2]
- f) What are the advantages of Hot Isostatic Pressing? [3]
- g) Give examples of Ceramic matrix composites. [2]
- h) What are the limitations of Ceramic matrix composites? [3]
- i) Give examples of Polymer Matrix Composites. [2]
- j) List out the advantages of Polymer Matrix Composites over Ceramic matrix composites. [3]

PART - B

(50 Marks)

- 2.a) What are the advantages and limitations of composite materials over alloys. [5+5]
 - b) List out the uses of composite materials. [5+5]
- OR**
- 3.a) Explain how reinforcements effect the properties of composite materials. [5+5]
 - b) Describe the future potential of composite materials. [5+5]
4. Briefly describe the production method for the following and list out their properties.
a) Glass fibers
b) Carbon fibers. [5+5]
- OR**
5. Briefly describe the production method for the following and list out their properties.
a) Kevlar fibers
b) Boron fibers. [5+5]

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