GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

SM19002042

Registration No: | | | | | | | | | | |

Total Number of Pages : 1 **M.TECH**

M.TECH 2ND SEMESTER (AR 17) SUPPLEMENTARY EXAMINATIONS, APRIL/MAY 2019

COMPOSITE STRUCTURES

Branch: SE, Subject Code:MSEPE2032

Time: 3 Hours **Max Marks : 70**

PART-A (10 X 2=20 MARKS)

1. Answer the following questions.

(a) State the characteristics and classification of composites.
(b) State the difference between homogeneous and isotropic material.
(c) What are the monoclinic material constants?
(d) Sketch the schematic diagram for unidirectional, bidirectional and quasi-isotropic fibers.
(e) What do you mean by adhesive? Give an example.
(f) What do you mean by volume fraction of voids?
(g) Sketch the graph between stress and strain.
(h) What do you mean by fiber orientation?
(i) What are the applications of carbon carbon composites?
(j) Distinguish between natural axis and arbitrary axis.

PART-B (5 X 10=50 MARKS)

Answer any five questions from the following.

2. (a) State the deviation in strain energy theory. [5]
   (b) State the relation between engineering constants in x, y and 1, 2 direction. [5]
3. (a) Describe various types of polymers used in the advanced polymer composites? [5]
   (b) State the various applications of ceramic composites in industries. [5]
4. (a) What do you mean by particulate ceramic matrix composites? Describe its composite systems. [5]
   (b) State the differences between balanced and unbalanced laminates. [5]
5. (a) Describe mid limb theory. [5]
   (b) Describe the various compositions of composite to produce and design the composite structures. [5]
6. (a) Define (a) orthotropic material (b) isotropic material and give the number of elastic constants in macro mechanics. [5]
   (b) What are the assumptions made in the strength of materials approach model? [5]
7. (a) What are the elements of the transformed reduced stiffness matrix? [5]
   (b) What is the need of design guide lines in sandwich construction? [5]
8. Write short notes on
   (a) Multilayered composites. [5]
   (b) Volume of composites [5]

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