Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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|  |  |  |  |
| **Code :** | **14ME2039** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPOSITE MATERIALS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain in detail the various types of matrices. | CO1 | 10 |
| b. | Compare the advantages and disadvantages of various type of matrices. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Explain in detail about the characteristics of fibers. | CO1 | 10 |
| b. | Briefly explain the various type of smart materials and their characteristics. | CO1 | 10 |
|  |  |  |  |  |
| 3. |  | Derive the Hooke’s law for different types of materials. | CO1 | 20 |
| **(OR)** | | | | |
| 4. | a. | Discuss the Fatigue and Impact properties testing methods for composites. | CO2 | 10 |
| b. | Give atleast four mechanical properties of composites and explain their testing method. | CO2 | 10 |
|  |  |  |  |  |
| 5. |  | Discuss the influence of elevated temperature and moisture in the composite materials. | CO2 | 20 |
| **(OR)** | | | | |
| 6. |  | Compare the hand lay-up and Bag molding process with neat diagram. List their advantages and disadvantages. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Discuss in detail the various non destructive testing methods for composite materials. | CO2 | 20 |
| **(OR)** | | | | |
| 8. | a. | Describe in detail the general charcteristics of composites with advantages and disadvantages. | CO3 | 10 |
| b. | List the various application of composite materials with example. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Derive atleast two elastic moduli of an unidirectional lamina in micromechanical analysis. | CO1 | 13 |
| b. | Define strain energy. | CO1 | 3 |
| c. | Differentiate between homogeneous and isotropic property. | CO1 | 4 |