Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEM B.TECH AERONAUTICAL AND AUTOMOBILE ENGINEERING

END SEMESTER MAKE UP EXAMINATIONS

SUBJECT: COMPOSITE AMTERIALS [AAE 374]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A. Define composite material and explain the functions of constituent materials. **(03)**

1B. What do you mean by thermoset resin? Explain the curing process of epoxy resin. **(03)**

1C. With neat sketch explain the fabrication process of Ex- PAN carbon fibers. **(04)**

2A. With suitable sketch explain the major steps involved in vacuum bagging process. **(03)**

2B. Define rule of mixture and prove that composite properties are directly proportional to volume fractions of fiber and matrix. **(03)**

2C. With neat sketch explain the compression moulding process. List its advantages, disadvantages and applications. **(04)**

3A. With suitable sketch explain the failures observed in adhesive joints. **(03)**

3B. Sketch and explain spray lay-up process and list advantages, limitations and applications. **(04)**

3C. What is polar winding? Explain the process with a neat sketch. **(03)**

4A. Sketch and explain the stir casting process used in the fabrication of MMC. **(03)**

4B. With neat sketch explain the production of CNT by arc discharge method. **(04)**

4C. Explain the reactive melt infiltration process used in fabrication of CMC **(03)**

5A. Explain laser beam machining of composite materials. **(03)**

5B. With neat sketch explain pultrusion process used in the fabrication of PMC. **(04)**

5C. Name any two common matrix materials in MMC. List their applications. **(03)**

6A. What will be the thickness of a laminate consisting of 2 layers of 450 g/m^2 chopped strand mat if a resin to glass ratio (by weight) of 2:1 is used? **(02)**

6B. What do you mean by solid state fabrication of MMC? With neat sketch explain diffusion bonding process. **(04)**

6C. With neat sketch explain the chemical vapor infiltration process for the fabrication of CMC **(04)**