Hall Ticket No ☐☐☐☐☐☐☐☐☐☐   Course Code **AAE005**

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

Four Year B.Tech IV Semester CIE – II, May – 2018
Regulations: IARE-R16
AIRCRAFT MATERIALS AND PRODUCTION

Time: 2 Hours   **(AE)**   **Max Marks: 25**

Answer all question from Part – A
Answer any four questions from Part – B
All parts of the question must be answered in one place only

PART – A

1. (a) Why riveting technique is so important in aircraft industry?[BL: Remember | CO: 2 | Marks: 1]
   (b) What is unconventional machining process? Discuss advantages.
   [BL: Understand | CO: 2 | Marks: 1]
   (c) Why lathe machine is called universal machining machine? [BL: Remember | CO: 7 | Marks: 1]
   (d) Illustrate the process of plastic polymerization.
   [BL: Remember | CO: 9 | Marks: 1]
   (e) Describe the applications composites in airline industry. [BL: Understand | CO: 11 | Marks: 1]

PART – B

2. (a) Classify types of riveting tools used Write down the applications and advantages of these.
   [BL: Understand | CO: 4 | Marks: 2]
   (b) Bring out the differences between bending and shearing. With neat sketches explain the bending
   and shearing operations? [BL: Understand | CO: 4 | Marks: 3]

3. (a) What is the main difference between milling and surface grinding?
   [BL: Understand | CO: 1 | Marks: 2]
   (b) Explain clearly with CNC machine and advantages of CNC over manual machining.
   [BL: Remember | CO: 1 | Marks: 3]

4. (a) List down the applications of laser beam machining and electron beam machining.
   [BL: Understand | CO: 8 |Marks: 2]
   (b) With help of neat diagram, explain the working procedure abrasive jet machining. Write some
   advantages, disadvantages and applications. [BL: Understand | CO: 8 |Marks: 3]

5. (a) Discuss about polymers. Classify them and give typical applications in aerospace industry and
   mention their critical issues? [BL: Understand | CO: 8 | Marks: 2]
   (b) Sketch the structure of FRP and explain clearly? Explain why composites are supposed to be
   used in airlines? [BL: Understand | CO: 8 |Marks: 3]

6. (a) Differentiate between alloys and composite materials? Give their properties and load of impacts
   on them.
   [BL: Understand | CO: 11 | Marks: 2]
   (b) Define isotropic, anisotropic, orthotropic materials. Why composite materials are isotropic in
   nature? [BL: Understand | CO: 11 | Marks: 3]