Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

III SEMESTER B.TECH. (AERONAUTICAL ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2017

SUBJECT: AIRCRAFT PRODUCTION TECHNIQUES [AAE 2102]

REVISED CREDIT SYSTEM
(26/12/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A. Different between slip and twining **(03)**

1B. With neat sketch explain body centered cubic structure **(03)**

1C. Neatly sketch Iron-Graphite equilibrium diagram and mark the phases. **(04)**

2A. With a neat sketch explain the induction hardening process. List the merits and demerits in the process **(05)**

2C. Explain with neat sketch Pultrusion process with its merits and demerits **(05)**

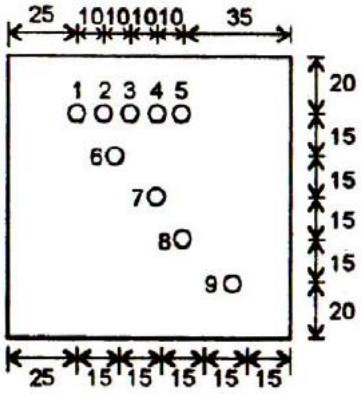
3A. With a neat sketch explain the grain boundaries **(02)**

3B. List and discuss the process parameters which effects the performance of abrasive jet machining process **(03)**

3C. Explain with neat sketch electron beam machining process, process characteristics, process parameters, advantages, limitations, applications **(05)**

4A. Melting temperatures of Copper (Cu) and Silver (Ag) are 1080 degree centigrade and 960 degree centigrade respectively. The metals Copper and Silver are mutually soluble in the liquid state and partly soluble in the solid state. A liquid phase alloy containing 70% Silver completely transforms into a mixture of two solid solutions at 780 degree centigrade. Maximum solubility of Ag in Cu and Cu in Ag are 8% and 10% respectively at 780 degree centigrade. At the room temp. Solubility is negligible. Assuming the curves to be linear, draw phase diagram to scale and label the regions. For 40% Ag alloy determine the following: **(05)**
a) Weight percentage of eutectic formed.
b) Temperature where equal proportions of liquid and solid phases exists.

4B. Write the part program for the following part **(05)**



5A. Define recovery and recrystallization **(02)**

5B. With a neat sketch explain the Face centered cubic structure **(03)**

5C. With a neat sketch explain the filament winding techniques. List its merits and demerits of the process. **(05)**