Code: 9A21405

II B.Tech II Semester (R09) Regular & Supplementary April/May 2012 Examinations
AIRCRAFT PRODUCTION TECHNOLOGY
(Aeronautical Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

*****

1. (a) Explain different methods to eliminate slag and in gating system.
   (b) Explain centrifugal casting with the help of neat sketches and also give its applications.

2. (a) Explain the mechanism of diffusion solid state welding.
   (b) What are the recent advances in welding technology pertaining to the field of aircraft industry? Explain.

3. (a) What are the precautions to be taken to obtain accurate deep holes in drilling operation?
   (b) Explain, when is the split nut or half nut is closed while cutting odd number of threads per centimeter and also explosion how the sizes of an engine lathe is specified?

4. (a) Draw neat sketches of a punch and die, explain punching operation.
   (b) Explain the spring back phenomenon with the help of sketches.

5. Explain the ECM process with the help of figures, Discuss how the matching rate in ECM process will be effected by applied voltage between tool and work piece?

6. (a) Explain the difference between flame hardening and induction hardening.
   (b) List out the advantages, limitations and applications of flame hardening.

7. (a) Describe the templates with reference to aircraft project related tooling.
   (b) Describe the master models with reference to aircraft project related tooling.

8. (a) What is the significance of quality assurance in manufacturing process and finished products?
   (b) Explain the difference between inspection and quality control with examples.

*****

Code: 9A21405

II B.Tech II Semester (R09) Regular & Supplementary April/May 2012 Examinations
AIRCRAFT PRODUCTION TECHNOLOGY
(Aeronautical Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

*****

1. (a) Distinguish between green sand molding and dry sand molding.
   (b) What are the main advantages and disadvantages of investment casting over centrifugal casting?

2. (a) Explain the mechanism of arc blow.
   (b) How the welding process is classified? Write the advantages and drawbacks of the welding process?

3. (a) Explain the difference between the horizontal and vertical milling machine with neat sketches.
   (b) Write short notes on shaping machine and also list out merits, demerits and applications.

4. (a) What should the die angle is required to bend sheet metal up to 60°. Give reasons in support of your answer.
   (b) Describe the factors that influence the size and length of beads in drawing operations.

5. (a) Explain the plasma arc machining and its applications in detail.
   (b) Explain the power circuits used for Electro Discharge Machine.

6. (a) Explain the terms Pickling and Polishing.
   (b) Explain the heat treatment processes.

7. (a) classify Jigs and Fixtures. Differentiate between Jigs and Fixtures.
   (b) Explain with the help of neat sketches what type of riveted joints used in aircraft industry.

8. (a) Briefly explain the concept of zero defects.
   (b) List the different dyes that are used in the dye penetrate test? And also explain the applications of NDT.

*****

Code: 9A21405

II B.Tech II Semester (R09) Regular & Supplementary April/May 2012 Examinations
AIRCRAFT PRODUCTION TECHNOLOGY
(Aeronautical Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

*****

1. (a) Explain the term gating system. State the main requirements expected in an ideal gating system.
   (b) With the help of sketches, discuss the various design considerations for designing the sand mould castings.

2. (a) Explain what are the precautions to be taken to avoid heat shrinking in resistance spot welding?
   (b) Explain the carbon arc welding processes with the help of neat sketches? Give its advantages and disadvantages.

3. (a) What is the difference between a box-column type and a round-column type drilling machine? Explain with the help of figures.
   (b) With reference to relative motion between cutting tool and work piece, classify the different machining operations.

4. (a) List out various operations generally performed in as sheet metal shop.
   (b) Distinguish between bending and drawing in sheet metal operations.

5. (a) What is unconventional machining? Describe briefly about the laser beam machining process with the help of neat diagrams.
   (b) What are the advantages and drawbacks of ultrasonic machining process?

6. (a) Classify the different types of steels based on the carbon content. How do the material properties vary after the heat treatment?
   (b) State and explain the difference between hardening and case hardening.

7. (a) What are the materials used for manufacture of Tools?
   (b) Explain how assembly jigs are usually grouted to the ground using foundation bolts for a typical wing assembly jigs.

8. (a) Explain quality cost in brief.
   (b) How are the flaws inspected with magnetic particle testing method? What are the advantages and drawbacks of this method over the other inspecting techniques?

*****

Code: 9A21405

II B.Tech II Semester (R09) Regular & Supplementary April/May 2012 Examinations
AIRCRAFT PRODUCTION TECHNOLOGY
(Aeronautical Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

*****

1. (a) How the gating system designed? What are the factors involved in that design?
   (b) What are the different types of shell moldings? What are the various design considerations for designing the shell mould castings?

2. (a) Write about the various fluxes and filler material used in brazing process.
   (b) Explain the advantages, limitations and specific applications of TIG.

3. (a) Write the differences that you have observed between products made of sheet metals and those made by casting and forging.
   (b) Explain the features of CNC machines.

4. (a) Generally, the die opening is straight up to a certain length and tapered thereafter. Explain the reason of the above statement with supporting reasons.
   (b) Determine the die and punch sizes for blanking a circular disc of 20 mm diameter from C20 steel sheet whose thickness is 1.5 mm.

5. (a) What is Electro Discharge machining? When will you use reverse polarity in EDM?
   (b) What are the similarities between ultrasonic machining and electron discharge machining?

6. (a) Discuss the application of titanium and its alloys in brief in the aircraft production and manufacturing industry.
   (b) Explain the technology of surface finish in detail adopted in the aircraft production industry.

7. (a) With the evolution of design and production technologies since 1960's, the type and quantum of project related tools have changed considerably. Support the above statement with the important developments on tooling requirements in the area of production field.
   (b) Explain the cost of production related tools.

8. (a) Explain, How metal is inspected by X-rays techniques?
   (b) Explain the different statistical quality control techniques that play a significant role in the field of air craft industry.

*****