

Code No: 07A42102

**Set No. 1**

**II B.Tech II Semester Regular Examinations, Apr/May 2009**  
**AIR CRAFT PRODUCTION TECHNOLOGY**  
**(Aeronautical Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Discuss the relative advantages and disadvantages of various types of furnaces used in foundry shops. [16]
2. (a) What is the principle cause of cracks in weld metal?  
(b) What are the methods of controlling warping during welding? [8+8]
3. List and Explain various types of mandrels used in a lathe. [16]
4. What are the various types of sheet metal operations and explain them with neat sketches? [16]
5. (a) With neat schematic sketch, explain Principle of Electrical Discharge Machining Process?  
(b) What are dis-advantages of Electrical Discharge Machining Process? [10+6]
6. Discuss the surface hardening methods of steel. [16]
7. Write short notes on :
  - (a) Tool guiding elements
  - (b) Wedge clamps
  - (c) Locking devices
  - (d) Plastics as fixture component material. [4+4+4+4]
8. (a) Differentiate between Quality and Reliability.  
(b) Compare the following:
  - i. Inspection
  - ii. Quality Control
  - iii. Quality assurance. [10+6]

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**Set No. 2**

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1. How do you classify various manufacturing processes and compare their merits and demerits? [16]
2. Describe in detail about the methods / procedures used for welding different materials. [16]
3. How do you classify the grinding process in accordance with the type of surface to be ground and explain them with neat sketches? [16]
4. (a) Differentiate between shearing and punching operations?  
(b) List out various operations that can be performed using a press in sheet metal work. [8+8]
5. (a) What are the materials that can not be machined by Laser Beam Machining? Why?  
(b) Explain the metal removal mechanism in Laser Beam Machining.  
(c) How Laser Beam is used for machining and welding applications? Explain. [5+5+6]
6. Discuss various types of hardening methods. [16]
7. Discuss various materials used for components of Jigs and Fixtures. [16]
8. (a) What are the advantages of Quality Control?  
(b) Quality concentrates on customer satisfaction. Explain. [6+10]

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**Set No. 3**

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1. What are the various moulding defects and how they are caused? [16]
2. (a) Describe briefly the metallurgical effects of the resistance welding.  
(b) Is pre-weld surface preparation important in resistance welding? Justify it. [8+8]
3. (a) What are the various types drilling machines?  
(b) Explain how the size of a drilling machine can be specified. [8+8]
4. (a) Differentiate between direct pilots and indirect pilots?  
(b) Briefly explain combination dies and stretch press dies in sheet metal work. [8+8]
5. (a) Explain the applications of Ultrasonic Machining?  
(b) What are advantages and limitations of Ultrasonic Machining? [8+8]
6. (a) What is the purpose of Normalizing of steels? Explain?  
(b) Discuss various applications of Normalizing process. [8+8]
7. Discuss various precautions to be taken while manufacturing the Components of Jigs and Fixtures. [16]
8. Explain, how “holography technique” records the three-dimensional image of a part to be inspected. [16]

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**Set No. 4**

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**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Write short notes on the following:
  - (a) Centrifugal casting
  - (b) Die casting
  - (c) Slush casting. [6+5+5]
2. (a) Explain the principle of atomic hydrogen welding and the role of hydrogen in this welding?  
(b) What metals are welded now a days by this process? [8+8]
3. Describe the working principle of radial drilling machine with a neat block diagram. [16]
4. List out various measuring tools and explain with neat sketches. [16]
5. Compare the Abrasive Jet Machining and Ultrasonic Machining? [16]
6. (a) Explain the process of quenching of steel.  
(b) Discuss the microstructure and properties of steel after hardening. [8+8]
7. With neat sketches, discuss the type of fixtures used for Bolted joints. [16]
8. (a) What are the advantages of Quality Control?  
(b) Quality concentrates on customer satisfaction. Explain. [6+10]

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