

**B.Tech. (AEROSPACE ENGINEERING)  
(BTAE)**

**Term-End Examination**

00565

December, 2014

**BAS-004 : WORKSHOP TECHNOLOGY**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any *seven* questions. All questions carry equal marks.

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1. (a) Distinguish between Gate and Riser as referred to casting. 5
- (b) State the causes of the following defects in casting and suggest their remedies : 5
  - (i) Blow Hole
  - (ii) Porosity
  - (iii) Shrinkage
  - (iv) Shift
  
2. (a) Explain with a neat sketch the different types of oxy-acetylene flames indicating their applications. 5
- (b) What is TIG welding ? What are its advantages and limitations ? 5

3. (a) Show by a neat sketch the different parts of a Milling machine. State briefly the function of each part. 5
- (b) What is cutting fluid ? State the desirable properties of cutting fluid. 5
4. (a) Describe briefly the functions and applications of NC machines. State the fundamental differences between NC and CNC machine tools. 5
- (b) Explain the following operations performed by a Drilling machine : 5
- (i) Counter Boring
- (ii) Counter Sinking
5. (a) Explain the following terms : 5
- (i) Basic size
- (ii) Standard size
- (iii) Nominal size
- (iv) Tolerance
- (v) Allowance
- (b) For determining accurately the thickness of a thin Mica sheet which instrument should one use ? Explain the working of the instrument. A micrometer has a pitch of 0.5 mm. It has 50 divisions on its circular scale. What is the Least Count of the micrometer ? 5

6. (a) What are limit gauges ? What are their functions and advantages ? 5
- (b) What is a vernier caliper ? State its uses. In a vernier caliper, 24 divisions of the main scale coincides with 25 divisions of the vernier scale. The smallest division of the main scale is 1 mm. What is the least count of the instrument ? 5
7. (a) State the advantages of Aluminum alloys over Ferrous alloys. 5
- (b) What is Soldering ? How does it differ from Brazing ? Write the applications of Soldering and Brazing. 5
8. (a) Discuss the common defects in welding. 5
- (b) Distinguish between Gas welding and Arc welding from the point of view of heat concentration, temperature, ease of operation and running cost. 5
9. (a) Why is annealing required ? Explain Recovery, Recrystallization and Grain growth of a part during Annealing. 5
- (b) Name the different metals used in tin-smithy work. Briefly describe their properties mentioning the use of each. 5

10. (a) What is a cutting tool ? What properties are expected from a cutting tool ? Give one application each of the following cutting tools :

(i) Turning Tool

(ii) Facing Tool

(iii) Parting Tool

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(b) What is Heat Treatment ? What are the objectives of Heat Treatment ? Describe the Hardening operation as applied to cutting tools.

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