

## ***B. Tech Degree IV Semester Examination, April 2010***

### **ME 406 MANUFACTURING PROCESS (2006 Scheme)**

Time : 3 Hours

Maximum Marks : 100

#### **PART - A (Answer ALL questions)**

(8 x 5 = 40)

- I. (a) What are the common allowances provided on a pattern and why are they provided?  
(b) What is meant by permeability of a mould? Briefly discuss a method of measuring the same.  
(c) Explain the term fettling. State the major methods of cleaning castings.  
(d) Describe briefly the procedure and the chemistry involved in shell moulding.  
(e) Explain with the aid of neat sketches the following operations :  
(i) upsetting (ii) fullering (iii) bending.  
(f) Distinguish between hot working and cold working. Why are a number of passes required to roll a steel bar?  
(g) Briefly describe the equipment required for oxy-acetylene welding. How are oxidizing, reducing and neutral flames obtained in a welding torch?  
(h) What is the principle of thermit welding? Indicate what it can do better than other welding processes.

#### **PART – B**

(4 x 15 = 60)

- II. Mention any six properties of moulding sand. Explain the process of sand conditioning. Distinguish between green sand moulding and dry sand moulding. (15)
- OR**
- III. What do you understand by the term gating system? With the help of a diagram explain different parts of a gating system. Classify gating based on their position in the mould cavity. (15)
- IV. Explain the process of Investment Casting and discuss its merits and demerits over other casting processes. (15)
- OR**
- V. Name any ten casting defects that are encountered in sand casting and discuss their causes and remedies. (15)
- VI. (a) Explain with the aid of neat sketches any three types of forging operations. (9)  
(b) Outline the general principles of forging design. (6)
- OR**
- VII. (a) Describe with the help of sketches the process of tube extrusion. (8)  
(b) Write short notes on 'spring back' in sheet metal bending and methods to overcome the same. (7)
- VIII. (a) Explain the techniques of (i) Electron Beam Welding (ii) Explosion Welding. (8)  
(b) Briefly describe TIG welding and discuss its applications. (7)
- OR**
- IX. (a) Discuss the principle and procedure of resistance welding. Mention any three methods used in resistance welding. (8)  
(b) Write notes on distortion and residual stresses in welding. (7)

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