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**BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

Term-End Examination

June, 2010

BME-003 : MANUFACTURING TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

Note : Answer any seven questions. Use of calculator is allowed.

1. (a) Explain with the help of a neat sketch the blast furnace process. 5+5
(b) Why induction furnaces are popular for melting of non-ferrous metals ?
2. (a) Discuss the desirable properties of a good moulding sand ? What are Molasses ? 5+5
(b) What is gravity die casting ? Discuss the salient features of permanent mould casting.
3. (a) Explain the principle of die casting process. State its advantages, disadvantages and applications. 5+5
(b) Construct a stress-strain diagram for a mild steel and explain the various significant points.

4. (a) How is hot working different from cold working ? Explain the advantages and disadvantages of cold working. 5+5
- (b) What is the difference between open die forging and closed die forging ? Explain the various forging defects.
5. (a) Distinguish between drawing and extrusion process. 5+5
- (b) Discuss the common defects that may occur in an extruded product.
6. (a) Determine the force required to punch a 60 mm diameter hole in an annealed steel sheet ($\sigma_s = 3 \times 10^7$ Pa) of 7 mm thickness. 5+5
- (b) Distinguish between piercing and blanking. What is the effect of too much and too less clearance ?
7. (a) How can the cost per component while machining be reduced ? Give suitable examples. 5+5
- (b) Define tool life. Discuss the variables affecting the tool life.
8. (a) Write the factors which need to be considered while selecting the type of current for shielded Metal Arc welding. 5+5
- (b) What is the significance of welding arc in welding ?

9. Calculate the drawing load for 20% reduction of area 22 mm and 4 mm annealed mild steel strip using straight tapered die. Assume $\mu = 0.1$ and yield stress of mild steel as 25 kg/mm^2 and angle $\alpha = 24.5^\circ$ where $\sigma'_0 = 2.25 \text{ MPa}$. **10**
10. (a) How is the gas welding different from arc welding ? State the advantages of submerged arc welding process. **5+5**
- (b) Describe the following :
- (i) Oxygen Arc cutting
 - (ii) Flame Gouging
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