

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-V Examination-Nov/Dec.-2011

Subject code: 151901**Date: 22/11/2011****Subject Name: Manufacturing Processes-II****Time: 2.30 pm -5.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is pattern? List different types of patterns and explain any two with neat sketch. **07**
- (b) Explain the following: **07**
- (i) Rapping allowances
 - (ii) Distortion allowances

- Q.2** (a) List factors which affect salvaging of casting. Also list various salvage techniques of casting and explain any one. **07**
- (b) Discuss: (i) Shell Moulding (ii) Die Casting **07**

OR

- (b) Explain the properties of moulding sand. **07**
- Q.3** (a) What determines whether a certain welding process can be used for workpiece in a horizontal, vertical, or an upside-down position, or for all types of positions? Explain, giving appropriate examples. **07**
- (b) Two flat copper sheets of 1.2mm thickness each are spot welded. The process parameters are: current = 5000A, Current flow time = 0.20second, and diameter of electrodes = 6mm. Estimate the heat generated in the welding zone. **07**

OR

- Q.3** (a) Explain the factors involved in electrode selection in arc welding processes. **07**
- (b) A steel tube of 76mm outer diameter and 4mm thickness is welded to a flat piece by applying friction welding process with the following information: Energy applied $E = IS^2/C$, where I = Moment of inertia of the flywheel, S = spindle speed in rpm, C = proportionality constant = 250, weld zone = 5mm deep, and energy required to melt the electrode = 0.14kg-m. If the entire energy of the flywheel is used to heat the electrode, what is the required moment of inertia of the flywheel?. **07**

- Q.4** (a) Explain why there might be a change in density of a forged product as compared to that of the cast blank. **07**
- (b) Explain how you would go about applying front and back tensions to sheet metals during rolling **07**

OR

- Q.4 (a)** It was stated that the extrusion ratio, die geometry, extrusion speed, and billet temperature all affect the extrusion pressure. Explain why. **07**
- Q.4 (b)** How would you go about preventing center burst defects in extrusion? Explain why your methods would be effective. **07**
- Q.5 (a)** With the aid of sketches, compare the principles of compression moulding, injection moulding and extrusion moulding. Describe where each would be used in terms of materials and components. **07**
- (b)** Explain with sketch and application: Cylindrical and Center less grinding process for finishing operation. **07**
- OR**
- Q.5 (a)** Explain what is meant by term Inserts, and explain where they are of use in plastic moulding. Sketch a typical component showing the position of the Inserts and explain their purpose. **07**
- (b)** Explain: (i) Barrel Tumbling (ii) Polishing operation **07**
