

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 172003****Date: 28-05-2013****Subject Name: Manufacturing Technology****Time: 02:30 pm – 05:00 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 are the main characteristics of the hot working as compared with cold working processes? Define the following terms in cold working of metals. **07**
(i) Shearing (ii) Squaring shears (iii) Beading (iv) Bulging (v) Stretching forming.
- (b)** List the various operations that can be carried out with press. Describe with neat sketch bending, deep drawing and reverse redrawing operations. **07**
- Q.2 (a)** Explain the technical and economic characteristics in the selection of casting process. Write specific advantages offered by casting process. **07**
- (b)** Sketch the components of gating system. What are the functions of good gating system? Explain the casting defects attributable to poor gating design? **07**
- OR**
- (b)** Explain the principles of fluid flow involved in the design of sprue, runner and gating deriving the expressions. **07**
- Q.3 (a)** With a neat sketch, explain the principle of operation, merits-demerits and application of shell moulding process. **07**
- (b)** With neat sketch, describe the centrifugal casting process, its merits-demerits and applications of the process **07**
- OR**
- Q.3 (a)** Classify the welding power source based on V-I characteristics. Explain the variation in current with neat sketch of moving coil high reactance welding transformer **07**
- (b)** What are the factors that influence the coating formulations of electrodes for SMAW? State the various ingredients of coatings, their important characteristics and its effects. **07**
- Q.4 (a)** Explain the principle of measurement by light wave interference method with neat sketch with its merits and limitations. **07**
- (b)** What are the various possible sources of errors in measurements? Explain indirect method of angle measurement using sine bar, slip gauges and dial indicator. **07**
- OR**
- Q.4 (a)** Describe the ECM Process with neat sketch and its process parameters. Compare ECM with EDM and state the applications of ECM process. **07**
- (b)** Explain the working principle of AJM process with neat sketch, process parameters, merits-demerits and its applications. **07**
- Q.5 (a)** Explain the working principle of EDM process with neat sketch, process parameters, merits-demerits and its applications. **07**
- (b)** What is LASER? Explain the LBM process with neat sketch, process parameters, merits-demerits and its applications. **07**
- OR**
- Q.5 (a)** Write short note on “Locating devices used in jig and fixture”. **07**
- (b)** Discuss the essential characteristics in the proper design of jigs and fixtures. **07**
