Seat No.: _____ Enrolment No._____

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. (i) Shearing (ii) Squaring shears (iii) Beading (iv) Bulging (v) Stretching forming.	**07**
	(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**

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