Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2722807 **Date: 19/11/ 2016**

Subject Name: Tool & Die Design

Time: 2:30 pm to 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)**	Describe the Design feature of Reamer with neat sketch.	**07**
	(b)	Design a shell inserted blade reamer tipped with cemented carbides for reaming a through hole, diameter 55 H7 in a workpiece of structural alloy steel with ultimate tensile strength of 1050 MPa. The diameter of the pre- machined hole is 54.65mm.	**07**
Q.2	**(a)**	Explain the Grinding process variables like wheel speed, work speed and stock removal setting for different cutting tool grinding.	**07**
	(b)	Elaborate the computer application in fixture design and analysis for CNC machine.	**07**
		OR	
	(b)	Explain the design principles of centralizers.	**07**
Q.3	**(a)**	What is Tolerance and Error analysis? Give the calculation of tolerance on Center distance between holes in Drilling Jigs.	**07**
	(b)	Estimate the blanking force to cut a blank 25mm wide and 30mm long from a 1.5mm thick metal strip, if the ultimate shear stress of material is 450 N/mm^2. Also determine the work done if the percentage penetration is 25 percent of material thickness.	**07**
		OR	
Q.3	**(a)**	How to increasing the press tool service life with cutting condition?	**07**
	(b)	The ultimate shearing strength of the material of washer is 280 N/mm^2. (a) Find the total cutting force if both punches act at the same time and no shear is applied to either punch or the die. (b) What will be the cutting force if the punches are staggered, so that only one punch acts at a time? (c) Taking 60% penetration and shear on punch of 1 mm, what will be the cutting force if both punches act together.	**07**
Q.4	**(a)**	Design for thermal consideration in forging dies.	**07**
	(b)	How to determine of Stock size?	**07**
		OR	
Q.4	**(a)**	Short note on mold flow analysis.	**07**
	(b)	Explain the steps of calculation of mold opening force and ejection force.	**07**
Q.5	**(a)**	Give the methods of temperature control in Injection molding process.	**07**
	(b)	Give the types of feeders used in Die Casting with neat sketch.	**07**
		OR	
Q.5	**(a)**	Give the types of cores used in die casting die design.	**07**
	(b)	Explain the Die casting Die defects with neat sketch & give their design remedies.	**07**

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