Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III EXAMINATION – SUMMER 2015

Subject Code: 2131903 **Date:29/05/2015**

Subject Name: MANUFACTURING PROCESSES-I

Time: 02.30pm-05.00pm **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)**	List the surface finishing processes. Why can close dimensional tolerances be not guaranteed with surface finishing operations?	**07**
	(b)	State the purpose of each part on lathe: (1) Face Plate, (2) Lead screw,(3)Steady rest, (4) Chasing dial, (5) Mandrel, (6) Split nut and (7) Tail stock.	**07**
Q.2	**(a)**	With help of neat diagram explain the following setup on centre lathe: (1) Use of fixed steady for drilling on end of a long bar. (2) A knurling operation set up. (3) Taper turning by swiveling compound rest.	**07**
	(b)	List the work holding devices used for holding work on a drilling machine and explain with neat sketch any three.	**07**
		OR	
	(b)	Determine the time required to drill a hole of 25mm diameter in a cast iron work piece 50mm thick using a high speed steel drill. The cutting speed and feed rate for the operation may be assumed to be 0.50 m/s and 0.5 mm/rev respectively. The drill point angle is 118˚m. An approach and over travel may be assumed to be 8mm.	**07**
Q.3	**(a)**	With help of neat sketch explain vertical boring machine and state function of its parts.	**07**
	(b)	List different type of reamers commonly used on drilling machine and describes with neat sketch any three.	**07**
		OR	
Q.3	**(a)**	What do you understand by (1) Gang milling (2) Straddle milling (3) String milling?	**07**
	(b)	Explain method of mounting and application of the following cutters used on milling machine: (1) End mills, (2) Slitting saws and (3) Slab milling cutter.	**07**
Q.4	**(a)**	Explain with neat sketch shaper feed mechanism.	**07**
	(b)	Draw a neat sketch of slotter and explain function of principle parts of slotter.	**07**
		OR	
Q.4	**(a)**	Calculate machining time for steel slab top surface 400mm wide and 500mm long to be planed on a planer. The cutting speed and return speed are 20 m/min and 80 m/min respectively. Take machining allowance as 10mm , side over travel of tool as 3mm,table over travel on both side as 100mm and tool approach angle as 45˚.The cross feed of tool is 3mm/full stroke.	**07**
	(b)	Explain basic principle of broaching. Make neat sketch of internal pull type broach showing various terms related to its teeth and explain significance of these terms.	**07**
Q.5	**(a)**	What is meant by setting the saw teeth? Describe various types of teeth sets and give their application.	**07**

	(b)	Discuss with neat sketch how are the following alignment test conducted on lath :(1) Spindle Centre run out (2) Pitch accuracy of lead screw.	**07**

OR

Q.5	**(a)**	List the various types of bond used in manufacture of grinding wheels. State the type of application in which each bond is useful.	**07**
	(b)	Explain how you will check the following on milling machine: (1)Central T-slot square with arbor (2) Work table parallel with arbor rising towards over arm.	**07**

****