Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) • EXAMINATION – WINTER 2016

Subject Code:2131903 Date:02/01/2017

Subject Name:Manufacturing Process-1

Time:10:30 AM to 01:00 PM Total Marks: 70

Instructions:

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

			MARKS
Q.1		**Short Questions**	**14**
	1	Differentiate between primary and auxiliary cutting motions in machine tools.	
	2	What is the function of a follower rest during turning?	
	3	State when up milling is preferred to down milling.	
	4	What is the function of a dead centre?	
	5	What is the importance of a helix angle in a drill bit?	
	6	Name the types of abrasives used for making a grinding wheel.	
	7	Write Taylor's tool life equation.	
	8	Define tool life.	
	9	State the function of cutting fluids.	
	10	What are natural and artificial abrasives?	
	11	What is a clapper box in a shaper?	
	12	Define "feed" in a turning operation.	
	13	Define 'boring'.	
	14	How many tools can be fitted on a capstan lathe at a time?	
Q.2	**(a)**	Explain the difference between right hand and left hand single point cutting tools with neat sketches.	**03**
	(b)	Explain the importance of back rake and end relief angles in a single point cutting tool	**04**
	(c)	State the advantages of all geared head stock as against a belt driven headstock. Explain the function of a half nut during lathe operation with a neat sketch.	**07**
		OR	
	(c)	Name the accessories commonly used to enhance the lathe operation. Explain the function of different types of mandrels.	**07**
Q.3	**(a)**	What is the material of a lathe bed? Why?	**03**
	(b)	Compare the benefits and limitations of a three jaw chuck vis-à-vis a four jaw chuck.	**04**
	(c)	Name the drilling operations. Explain counter boring and spot facing with neat sketches.	**07**
		OR	

Q.3	**(a)**	Calculate the change gears to cut a single start thread of 0.5 mm pitch on a centre lathe having a lead screw of 1 mm pitch.	**03**
	(b)	Explain the specifications of a drilling machine.	**04**
	(c)	With a block diagram, describe the main features of a horizontal boring machine.	**07**
Q.4	**(a)**	Explain reaming and tapping with neat sketches.	**03**
	(b)	Explain gang milling and straddle milling with neat sketches.	**04**
	(c)	Give neat sketches of internal pull type broach and indicate the various terms relative to its teeth.	**07**

OR

Q.4	**(a)**	Explain the importance of conducting alignment tests on a machine tool.	**03**
	(b)	Name the alignment tests required to be carried out on a milling machine.	**04**
	(c)	Explain simple indexing and compound indexing in milling operations.	**07**
Q.5	**(a)**	Differentiate between up milling and down milling.	**03**
	(b)	Differentiate between shaper and planer.	**04**
	(c)	State the factors to be considered for the selection of a grinding wheel. Explain the importance of wheel diameter.	**07**

OR

Q.5	**(a)**	Explain the specifications of a shaper.	**03**
	(b)	Explain how worktable reversal is obtained in a shaper.	**04**
	(c)	Explain the specifications of a grinding wheel. Explain why a hard wheel is recommended for grinding a soft material and vice versa.	**07**

****