

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2133404

Date:06/01/2017

Subject Name:Basic Manufacturing Processes

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 What do you mean by milling?	
	2 What do you mean by chip, what are the different types of chips in metal cutting?	
	3 What do you mean by quick return mechanism?	
	4 What are the differences between orthogonal and oblique cutting?	
	5 The clearance angle of a lathe tool has to be _____°.	
	6 Give the main difference between live center and dead center?	
	7 How will you create the arrangement of drilling in a lathe machine? Show it by sketch.	
	8 What are the objectives of machine tool?	
	9 What are the characteristics of cutting tool materials?	
	10 List out the different types of cutting tool materials.	
	11 Name the classification of lathes.	
	12 Define chip thickness ratio.	
	13 Explain the assumptions made by merchant circle?	
	14 Give two examples of orthogonal cutting.	
Q.2	(a) Define machining process. Give details classification of machining processes.	03
	(b) Enlist different types of milling cutters. Explain any three with neat sketch.	04
	(c) Discuss various lathe operations with neat sketch.	07
	OR	
	(c) Enlist various alignment tests carried out on Lathe machine to check accuracy level. Describe any two with neat sketch.	07
Q.3	(a) With the help of figure explain “Taper turning by setting over the tail stock method”.	03
	(b) Discuss and differentiate Up milling and Down milling process.	04
	(c) Derive equation for calculating the taper angle by compound slide method on Lathe operation.	07
	OR	
Q.3	(a) Explain any three work holding devices of lathe machine.	03
	(b) By drawing neat sketches explain following operations which are performed On drilling machine : (1) Counter boring (2) Counter sinking (3) Spot-facing (4) Trepanning	04
	(c) Describe various types of chucks used on lathe machine.	07
Q.4	(a) Explain principal parts of standard Planner with neat sketch.	03
	(b) Draw the withworth quick return mechanism of shaper.	04
	(c) Explain with neat sketch quick return mechanism of a Shaper machine.	07

OR

- Q.4** (a) Compare the Up milling and Down milling. **03**
(b) Sketch the twist drill with its nomenclature. **04**
(c) Describe various differences between Planner and Shaper. **07**
- Q.5** (a) Compare multi spindle drilling machine and Gang drilling machine. **03**
(b) Draw the 'geometry profile generated in the work piece body while taking cuts by following cutters : **04**
(1) Cylindrical cutter (2) Side and Face cutter (3) Double angle cutter
(4) Tee-slot
(c) Discuss Slotted disc mechanism in Slotting Machine. **07**
- OR**
- Q.5** (a) Describe advantages, limitations of Radial Drilling machine. **03**
(b) Explain following terminology of grinding wheel with suitable **04**
examples.
i. Grit material
ii. Grit Size
iii. Bond grade
iv. Structure of the wheel
(c) Explain glazing, loading and mounting of grinding wheel. **07**
