

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III (New) EXAMINATION – WINTER 2015

Subject Code: 2131903

Date: 21/12/2015

Subject Name: Manufacturing Processes - I

Time: 02:30pm to 05:00pm

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 Define feed in the turning operation	
	2 What is provided in place of tailstock in Capstan lathe?	
	3 Why is quick return mechanism used in shaping machine?	
	4 Give names of any two types of milling cutters.	
	5 What is the function of steady rest?	
	6 What is dead centre?	
	7 For which operation is the lead screw used?	
	8 What is the function of reamer?	
	9 What is a face plate?	
	10 What is function of a Mandrel?	
	11 Explain why broaching cannot be used to machine a blind hole.	
	12 In planner, does tool reciprocate or work piece reciprocates?	
	13 In tool signature 8-14-6-6-20-15-4, what is nose radius value?	
	14 What is the material of bed in conventional machine tool?	
Q.2	(a) Give classification of grinding machine.	03
	(b) Define a Basic Machine Tool and state the general requirements of machine tools?	04
	(c) Draw neat sketch of column & knee type milling machine. Label the main parts. State functions of each part.	07
	OR	
	(c) With neat sketch explain how stroke length can be set on a shaper having crank and slotted link mechanism?	07
Q.3	(a) Can slotter be called as vertical shaper? Justify your answer.	03
	(b) Describe working of circular sawing machine with neat sketch.	04
	(c) List the methods of taper turning on lathe machine. Explain with neat sketch the taper turning method that can be used for taper turning long length job.	07
	OR	
Q.3	(a) Explain how grinding wheels are classified.	03
	(b) Explain working of surface grinding machines.	04
	(c) Explain the thread cutting operation on lathe machine.	07
Q.4	(a) Derive the formula to estimate the machine time calculation for turning operation	03

- (b) Why different spindle speeds are provided on an engine Lathe? Explain 04
 - (c) Draw a neat sketch with label of following operation and indicate direction of cutting parameters on it. i) Reaming ii) boring iii) Counter boring iv) Countersinking v) Spot facing vi) Tapping vii) Trepanning. 07
- OR**
- Q.4**
 - (a) Explain the following terms. 03
i) Glazing ii) Loading iii) Dressing
 - (b) Explain Up milling with help of neat sketch, 04
 - (c) Explain gang drilling machine with a neat sketch. How does it differ from multiple spindle machine? 07
- Q.5**
 - (a) Explain Centerless grinding process to grind inside hollow pipes. 03
 - (b) Derive equation for calculating the taper angle by compound slide method on Lathe operation. 04
 - (c) Why alignment test are required on machine tool? With a neat sketch explain any two alignment test. 07
- OR**
- Q.5**
 - (a) Differentiate between centre type and centre less grinding machines. 03
 - (b) With help of neat sketch explain vertical boring machine 04
 - (c) Explain simple indexing and compound indexing for a milling machine 07
