

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

Subject Code :2133404**Date:29/12/2015****Subject Name: Basic Manufacturing Processes****Time: 2:30pm to 5:00pm****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 Explain the difference between boring and reaming.	
	2 Explain the tapping operation carried out on drill.	
	3 Explain the use of half nut in lathe machine.	
	4 Explain the drill operation carried out on lathe machine.	
	5 Explain the application of face plate, dog and right angle in lathe machine.	
	6 Explain the use of parting off tool, in lathe machine.	
	7 The work holding device used to locate bars in capstan lathes is called _____.	
	8 Device used for holding and guiding the tool in drilling, reaming or tapping operations is _____.	
	9 In metal cutting operations, chips are formed due to _____ deformation of metal.	
	10 When holes are required to be machined in several faces in small work piece, the jig used is _____ jig.	
	11 Device used for holding the work in milling, grinding, planning operations is _____.	
	12 A body which is free in space has _____ degree of freedom.	
	13 Negative rake is usually provided on _____ tools.	
	14 A body which is free in space has _____ freedom of translation.	
Q.2	(a) List the different type of lathes available giving salient features of each. What are the uses of (a) lead screw (b) feed rod (c) tail stock in a lathe?	03
	(b) Enumerate operations carried out on lathe. Explain 'setting of tailstock centre for taper turning' operation with neat sketch.	04
	(c) Differentiate between a capstan, a turret and an engine lathe.	07
	OR	
	(c) Explain functions of basic parts of Lathe machine with neat sketch.	07
Q.3	(a) Why chucks are used? List various types of chucks used in lathes. Describe any two in brief.	03
	(b) Sketch a twist drill and explain its nomenclatures.	04
	(c) Write classification of drilling machine. Enumerate various	07

operations carried out on drilling machine. Explain any four with neat sketch.

OR

- Q.3** (a) Find the time required for one complete cut on a piece of work 350 mm long and 50 mm in diameter. The cutting speed is 35 meters per minute and feed is 0.5 mm per revolution. **03**
- (b) Discuss how cutting force changes with variation of speed and rake angle of milling cutter. **04**
- (c) Sketch and specify the milling cutter indicating important tool geometry. **07**
- Q.4** (a) Explain the various operations which may be performed on a milling machine. **03**
- (b) Discuss and differentiate Up milling and Down milling process. **04**
- (c) Define milling. What are the various work holding devices used in milling. Explain their relative applications and disadvantages. **07**

OR

- Q.4** (a) Briefly describe the main features of cylindrical centre-type grinders. **03**
- (b) How are grinding wheels specified? Clearly differentiate between grade and structure of a grinding wheel. **04**
- (c) What is Indexing? Enlist and Discuss various types of Indexing. **07**
- Q.5** (a) What is meant by a 'universal' grinder? How does it differ from a plain grinder? **03**
- (b) What is centreless grinding? Describe centreless grinding operations. **04**
- (c) What is an Abrasive? How are abrasive Classified? Enlist and explain various abrasives used in grinding wheels. **07**

OR

- Q.5** (a) Explain with neat sketch quick return mechanism of a Shaper machine. **03**
- (b) Briefly explain the operations can be performed in a shaper efficiently. **04**
- (c) Differentiate between Planer and shaper. **07**
