

**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.

		<b>MARKS</b>
<b>Q.1</b>	<b>Short Questions</b>	<b>14</b>
	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.	
<b>Q.2</b>	(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?	<b>03</b>
	(b) Enumerate operations carried out on lathe. Explain 'setting of tailstock centre for taper turning' operation with neat sketch.	<b>04</b>
	(c) Differentiate between a capstan, a turret and an engine lathe.	<b>07</b>
<b>OR</b>		
	(c) Explain functions of basic parts of Lathe machine with neat sketch.	<b>07</b>
<b>Q.3</b>	(a) Why chucks are used? List various types of chucks used in lathes. Describe any two in brief.	<b>03</b>
	(b) Sketch a twist drill and explain its nomenclatures.	<b>04</b>
	(c) Write classification of drilling machine. Enumerate various	<b>07</b>

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**

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