

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- III (Old) EXAMINATION – WINTER 2019****Subject Code: 131903****Date: 07/12/2019****Subject Name: Manufacturing Process-I****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

- Q.1** (a) How are lathe machine tools classified? Differentiate between standard purpose and special purpose machine tools? **07**  
(b) What are the advantages of having a hollow spindle in the headstock of lathe? **07**
- Q.2** (a) Explain any four commonly used attachments on lathe. **07**  
(b) Compare Up Milling and Down Milling? Explain Dove-tail milling with neat sketch. **07**
- OR**
- (b) Estimate the time required machining a cast iron surface 250 mm long and 150 mm wide on a shaper with cutting-to return ratio of 3/2. Use a cutting speed of 21 m/min, a feed of 2 mm/stroke and a clearance of 25 mm. The available ram strokes on the shaper are: 28, 40, 60 and 90 strokes/min. Also, determine MRR assuming depth of cut as 4 mm **07**
- Q.3** (a) With a neat sketch show the different parts of a saddle type turret lathe. Differentiate between capstan and turret lathe? **07**  
(b) What are the differences between compound indexing and differential indexing? Explain the relative merits. **07**
- OR**
- Q.3** (a) With a neat sketches. Define “drilling,” “core drilling,” “counter drilling,” and “step drilling.” **07**  
(b) Explain briefly “Twist drill nomenclature” with neat sketches. **07**
- Q.4** (a) With a neat sketch explain feed mechanism of a shaper. **07**  
(b) Write briefly about broaching machines and its operations with neat sketch? **07**
- OR**
- Q.4** (a) Explain briefly a Jig boring machine with a neat sketch. **07**  
(b) Explain with a neat sketch about a horizontal milling machine. **07**
- Q.5** (a) Write short note on Alignment test carried on Drilling machine. **07**  
(b) Describe the working principle of surface grinding. **07**
- OR**
- Q.5** (a) How are slotting machine specified and mention few specifications? **07**  
(b) Write a short on “Band Sawing Machine,” **07**

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