

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III EXAMINATION – WINTER 2015

Subject Code:131903**Date:29/12/2015****Subject Name:** Manufacturing process -I**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.

- Q.1 (a) Draw simple sketch of engine lathe. List main parts of it and state functions of each part. 07
- (b) Explain with neat sketch up milling and down milling process. Describe its advantages and limitations. 07
- Q.2 (a) Discuss various lathe operations with neat sketch. 07
- (b) Discuss various drilling operations with neat sketch. 07
- OR
- (b) Draw neat sketch of radial drilling machine and name its parts, explain its working. 07
- Q.3 (a) How grinding wheel is specified? Explain in details. 07
- (b) Classify machine tools in detail. Explain types of motions in machine tools with examples 07
- OR
- Q.3 (a) Explain with neat sketch working of horizontal boring machine. State its advantages and limitations. 07
- (b) State comparison of shaper and planer. What are advantages and disadvantages of shaping and planning as compared to other operations? 07
- Q.4 (a) Sketch a typical broach tooth profile and name its elements. Explain working of pull type and push type broaching. 07
- (b) Draw neat sketch of column & knee type milling machine. Label the main parts of it. State functions of each part. 07
- OR
- Q.4 (a) List milling operations and explain following milling operations. 07
- i. Plain milling operation.
- ii. Straddle milling operation.
- iii. Angular milling operation.
- iv. Face milling operation.
- v. Helical milling operation.
- (b) List the principal types of metal cutting saws. Describe working of reciprocating and circular sawing machine. 07
- Q.5 (a) Differentiate between Capstan and Turret lathe. 07
- (b) A mild steel rod having 50 mm diameter and 500 mm length is to be turned on a lathe. Determine the machining time to reduce the rod to 45 mm in one pass when cutting speed is 30 m/min and a feed of 0.7 mm/rev. 07
- OR
- Q.5 (a) With the help of neat sketch explain the “Jig Boring Machine” 07

- (b) Explain grinding process with neat sketch. What are the special features & issues to be addressed by manufacturing engineer?

07
