

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: X41901**Date: 18/12/2015****Subject Name: Manufacturing Process 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.

- Q.1 (a)** 1. The shank of the reamer is to be produced by compound rest swivel method. The end diameters of the shank are 20mm and 25mm and the length of the taper is 30mm. Determine the compound rest swivel angle. **03**
2. The lead screw pitch is 6mm. The pitch to be cut on lathe is (1) 2TPI (2) 3.5TPI. The gear set is available of 20 to 120 teeth in steps of 5 teeth. One additional gear of 127 teeth is available. Find the driver to driven gear teeth ratio. **04**
- (b)** Draw conventional geometry of a single point cutting tool showing all angles and state the importance of each angle. **07**
- Q.2 (a)** List the taper turning methods on lathe and with proper sketch explain tailstock offset method. **07**
- (b)** Differentiate clearly engine lathe with capstan and turret lathe. **07**
- OR**
- (b)** List the lathe operations and draw any three operations showing its cutting speed, feed and depth of cut directions. **07**
- Q.3 (a)** With neat sketch explain the working of radial drilling machine with its advantages and limitations. **07**
- (b)** With neat sketch explain the working of crank and slotted lever quick return mechanism used in shaper. **07**
- OR**
- Q.3 (a)** List the different drilling machines and explain with neat sketch different operations performed on drilling machine. **07**
- (b)** With neat sketch explain the working of double housing planer and list its advantages and limitations. **07**
- Q.4 (a)** With neat sketch explain the working of horizontal milling machine and mounting of cutters on the same. **07**
- (b)** Explain gang, straddle and string milling with neat sketch and specify its applications. **07**
- OR**
- Q.4 (a)** List the different indexing methods and explain simple indexing method with proper indexing example. **07**
- (b)** List the milling cutters used on horizontal milling machine and with neat sketch explain use of any three of them. **07**
- Q.5 (a)** What are the basic functions of grinding operations? Explain the different surface grinding arrangements. **07**
- (b)** Define the terms for the grinding wheel: Glazing, Loading, Truing and Balancing. **07**
- OR**
- Q.5 (a)** Explain through feed, in feed and end feed center less grinding operations. **07**
- (b)** Explain with neat sketch the working of vertical shaping machine and state its advantages and limitations. **07**
