Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY PDDC-SEMESTER IV-• EXAMINATION - SUMMER - 2016

Subject Code: X41901		t Code: X41901 Date:18/11/20	ate:18/11/2016	
Subject Name: Manufacturing Process - I Time:02:30 PM to 5:00 PM Instructions:		22:30 PM to 5:00 PM Total Marks	Total Marks: 70	
	2	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
Q.1	(a) (b)	Classify machine tools. Draw and label schematic diagram of Lathe and explain any two parts of it.	07 07	
Q.2	(a)	List different operations performed on Lathe and with sketch explain any three of it.	07	
	(b)	Differentiate clearly between engine lathe, capstan lathe and turret lathe. OR	07	
	(b)	(i) Determine the gears to be fitted in the end gear train of a lathe without feed box to cut the following threads: (a) 8 TPI (b) 9 TPI (c) 2.5 mm pitch (d) 2.75 mm pitch. The lathe has a lead screw with 6 TPI and a change gear set with 20 to 120 teeth in steps of 5 teeth and an additional 127 teeth gear.	04	
		(ii) A tapered reamer blank is to be turned on an engine lathe. The tapered length is 120 mm while the overall length is 180 mm. The end diameters of the tapered length are 19 mm and 25 mm. Estimate the tailstock offset to turn this taper. Also calculate the angle to be set of compound rest to cut the same taper.	03	
Q.3	(a) (b)	Explain milling methods and state its advantages and disadvantages. Explain the working of Radial and Gang drilling machine. OR	07 07	
Q.3	(a)	Explain the working of universal indexing head.	05	
	(b) (c)	Explain the working of Jig boring machine. A dividing head is provided with two index plates with the following number of hole circles:	05 04	
		Plate 1: 24, 25, 28, 30, 34, 37, 38, 41, 42, 43 holes		
		Plate 2: 46, 47, 51, 53, 54, 57, 58, 59, 63, 66 holes Determine suitable plain indexing for:		
		(1) cutting 115 teeth on a gear blank (2) Marking two divisions at an angular spacing of 160° -30'.		
Q.4	(a) (b)	Differentiate clearly between Shaper and Planer and sketch slotting machine. Sketch the important features of an internal pull type broach and explain internal broaching. OR	07 07	
Q.4	(a)	Explain with sketch the working of crank and slotted lever quick return	07	
		mechanism of Shaper.	^-	
	(b)	Explain with sketch tooth set and tooth form in sawing.	07	
0.5	(a)	Explain the working of surface grinding machines.	07	

	(b)	Explain the nomenclature of grinding wheels.	07
		OR	
Q.5	(a)	Explain the working of center less grinding machine.	07
	(b)	Explain Gang, Straddle and String milling.	07
