Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2712802 Date:06/01/2017

Subject Name: Machining Science

Time: 2:30 pm to 5:00 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) (b)	Derive expression for shear angle using Lee & Shaffer's relationship. Discuss machining processes. Differentiate between orthogonal and oblique cutting.	07 07
Q.2	(a) (b)	Draw and discuss tool specifications in ASA and ORS. Explain the geometry of twist drill with neat sketch. OR	07 07
	(b)	Explain the geometry of milling cutters with neat sketch.	07
Q.3	(a)	Show the region of heat generation & explain infrared photographic technique for temperature measurement	07
	(b)	What is tool wear? Discuss basic three causes of tool wear. OR	07
Q.3	(a)	Discuss Equations of heat flow due to conduction, transportation, heat absorbed and heat generated during machining.	07
	(b)	Define cutting tool life. State the factors which affect tool life.	07
Q.4	(a) (b)	Explain mechanism of plastic deformation. Explain maximum production cost criterion and maximum production rate criterion for economic machining.	07 07
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Q.4	(a)	Discuss dynamometer requirements. Explain working principle of strain-gauge dynamometer.	07
	(b)	Discuss various types of chips with diagram.	07
Q.5	(a) (b)	Discuss grinding wheel specification. Explain honing and lapping operations. Explain ideal and natural surface roughness. Discuss factors affecting surface finish.	07 07
		OR	
Q.5	(a) (b)	Discuss mechanics of grinding process. Define machinability? State factors affecting machinability.	07 07
