Enrol	ment	No.	
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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV EXAMINATION – SUMMER 2016

	Subje Subje	ect Code:140605 Date:10/06/2016	
	Time	:10:30 AM to 01:00 PM Total Marks: 70	
		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a)	Derive the equation of strain energy due to suddenly applied load. Also find the resilience.	07
	(b)	Explain the Maxwell's theorem of reciprocal deflection with its significance.	07
Q.2	2 (a)	Explain the maximum principal stress theory with its limitations and advantages.	07
	(b)	Explain the shear strain energy theory with its application. OR	07
	(b)	Explain the theory of failure as shear stress energy theory with its application.	07
Q.3	3 (a) (b)	Derive the equation of deflection for open coiled helical spring. Derive the equations of Lame's equation for thick cylinder. OR	
Q.3	3 (a) (b)	Derive the formula of strain energy for flat spiral spring. Calculate the radial longitudinal and hoop stresses due to internal pressure in thick cylinder.	
Q.4	4 (a) (b)	Derive the basic formula for the shear stress distribution across the section. Draw Shear stress distribution diagram for typical 'T' section. Find the shear 0 ' stress values at important points.	
Q.4	4 (a) (b)	OR0What is shear center? State its practical significance.0Draw Shear stress distribution diagram for symmetrical Channel section. Find0the shear stress values at important points.0	
Q.5	5 (a) (b)	Determine the rotational stresses in discs. Explain the Castigliano's theorem and its importance. OR	07 07
Q.5	5 (a) (b)	Determine the stress on crane. Explain the stresses acting on compound cylinders.	07 07
