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		REVISED CREI		YSTE	M	010	Г		J 72	1		
Tir	ne: 3 Hours	05-05-2016					MA	X. I	MAR	KS:	50	
		Instructions	to Ca	ndida	tes:							
	 Answer any FIVE F Missing data may 	<i>TULL questions</i> . be suitably assum	ned									
1A.	Explain the procedure to obtain equivalent nodal load vector due to body weight for eight noded brick element							3				
1B.	Eight noded brick element of dimension1.2x1.2x1.6m "is subjected to a point load of 100 kN acting along X direction at a distance of 0.6 m along X direction, 0.2 m along Y direction and 0.4 m along Z direction from node 1. What is the equivalent nodal load vector due to this load?							d n it	3			
1C.	Obtain the stiffness matr with degrees of freedom	ix for two noded shown in figure F Fig. Q. 1	eleme ^r ig. Q.	nt of le 1C	ength	2 m	and	EI=	320	kNm	2	4
2A.	Explain the-procedure to What are the procedure t	o obtain the stift o overcome shear	fness locki	matrix ng prol	for olem	thick	plat	te ir	n ber	nding	g.	6
2B.	What are the strains for thick and thin plates in bending? How these strains are related to the displacements and forces								4			
3A.	Obtain the consistent ma	ss matrix for two	noded	l beam	elem	ent						4
	Modulus of elasticity an	d mass density fo	or a sp	ace tru	iss el	emer	nt wi	th c	oord	inate	s	

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4B.	Obtain the geometric stiffness matrix for two noded plane frame element. How do you transform the geometric stiffness matrix, from local to global directions	4
5A.	A footing of length is modeled using two-beam elements of equal lengths. It is supported on a soft soil which, is modeled using a Winkler elements which are connected at the three nodes of the footing. The stiffness of Winkler elements is equal to 1000 kN/m , the rigidity modulus of footing is equal to 1000 kNm^2 and is subjected to a udl of 10 kN/m . Write the equation of equilibrium for the footing resting on soft soil	6
5B.	What is band width and its minimization? Explain the band width minimization technique with an example of a plane frame structure	4
6A	Obtain the shape functions for three noded triangular clement using the shape functions of six noded triangular element	4
6B.	Write a note on i) Descretization of very large bodies ii) rigid body displacement criteria for displacement model iii) elastic half space approach for soil-structure interaction analysis	6