Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE Arch. – SEMESTER – I • EXAMINATION – WINTER 2013

Subject Code: 1015004 Date: 19-12-2013

Subject Name: Structure 1

Time: 10:30 am - 12:30 pm Total Marks: 50

Instructions:

1. **Attempt Any Five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q:1	**(a)**	Explain and understanding of composite system in structure.	**[5]**
	(b)	Give the difference between load bearing structure and framed structure.	**[5]**
Q:2	**(a)**	Give the difference between moment and couple. Also explain characteristics of a couple.	**[5]**
	(b)	Two forces act at an angle of 60°, the resultant is 50 N acting a 30° with one of the forces, find the value of forces.	**[5]**
Q:3	**(a)**	Define following: [a] Axis of symmetry [b] Point of symmetry [c] Centroid [d] Center of gravity	**[4]**
	(b)	Locate centroid of ISMC 150, having top and bottom flange 50mm x 10mm, web thickness 15mm.	**[6]**
Q:4	**(a)**	Explain the Lami's theorem with proof.	**[5]**
	(b)	Explain the types of beam with symbolic representation.	**[5]**
Q:5	**(a)**	Determine reaction at support A and B. A 6 meter beam carrying UDL 5 KN/MT over 2 meters from right end B of beam. A point load 15 KN is acting at 2 meter with 30° from left support A.	**[10]**
Q:6	**(a)**	Define moment of inertia and radius of gyration.	**[4]**
	(b)	A channel section, 300 mm deep has 150 mm wide flanges at top and bottom. If thickness of web and flanges are 10 mm uniform, determine its Moment of Inertia about both the centroidal axis.	**[6]**
Q:7	**(a)**	Give the importance of structure design in architecture.	**[5]**
	(b)	List out various structure members in building and explain any four members in details with their function and use.	**[5]**

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