

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.ARCH - SEMESTER– I • EXAMINATION – SUMMER 2014****Subject Code: 1015004****Date: 29-05-2014****Subject Name: Structure-I****Time: 2:30 PM to 4:30 PM****Total Marks: 50****Instructions:**

1. Attempt all questions.
2. Make suitable sketches wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Briefly explain important mechanical properties (any 6) **12**
- (b) Explain types of Loads **06**
- Q.2** (a) Two tensile forces 50 kN and 40 kN acting at a point with angle  $60^\circ$  between them. Find magnitude and direction of the resultant. **07**
- (b) Find the angle between two equal forces P when their resultant is equal to zero. **07**
- OR**
- (b) Find the angle between two equal concurrent forces P when their resultant is also equal to P. **07**
- Q.3** (a) Calculate centroid of a T-section having flange of 20cm X 2cm and web of 30cm X 2cm. **09**
- (b) Find centroid of ISA 90X60X6mm by keeping longer leg vertical. **09**

**OR**

- Q.3** (i) Find Reactions of a simply supported beam having u.d.l of 20kN/m throughout entire span of 8m. Point load of 50kN and 100kN are applied respectively at 2m from left side support and 2m from right side support. **18**
- (ii) Find Reactions of a simply supported beam having span of 8m. Point load of 8kN is applied on 2m from left side support and u.d.l of 4 kN/m is applied on 4m from right side support.

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