

GUJARAT TECHNOLOGICAL UNIVERSITY

BA - SEMESTER-I EXAMINATION – WINTER 2018

Subject Code:1015004

Date:03/01/2019

Subject Name:Structure-I

Time:10:30 AM TO 12:30 PM

Total Marks: 50

Instructions:

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

- Q.1 (a) State and explain law of Parallelogram of forces 05
- (b) List out various structural members in building and explain following with neat sketch: 1) Foundation 2) Beam 3) Column 4) slab 05
- OR
- (b) Briefly explain any five important mechanical properties. 05
- Q.2 (a) Write a short note on importance of Structures in the field of Architecture. 06
- (b) Two tensile forces 20 KN and 30 KN acting at a point with angle 60 degree between them. Find magnitude and direction of the resultant by using law of triangle. 06
- OR
- (b) Explain Types of beam and types of loads with neat sketches. 06
- Q.3 Calculate centre of gravity of a T-section having flange of 20cm x 2cm and web of 30cm x 2cm. 08
- OR
- Q.3 Define following terms with suitable examples: a) moment b) couple c) radius of gyration d) centroid. 08
- Q.4 Calculate moment of inertia about xx and yy about the centroidal axis of a T-section having flange and web each of size 60 x 20 mm. 10
- OR
- Q.4 Find moment of inertia about xx and yy about the centroidal axis of an unequal angle ISA 125 mm x 75 mm X 10 mm by keeping longer leg vertical. 10
- Q.5 A simply supported beam AB of span 8 m is subjected to two point loads of 60 KN & 90 KN acting at 2 m from each support. Find the reactions at the support. 10
- OR
- Q.5 A simply supported beam AB is having a span of 5 m carrying one point load of 20 KN acting at a distance of 2 meter from the left end A and UDL of 10 KN/m intensity over the entire span. Find the support reactions. 10
