Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PLAN - SEMESTER–I EXAMINATION – WINTER 2015

Subject Code: 1015502 **Date: 19/12/2015**

Subject Name: Fundamentals of Building Structures

Time: 10:30am to 12:30pm **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)** (1) It is a scalar quality **06**

(a) Force (b) Mass
(c) Moment (d) Couple

(2) Cover dimension provided in "column" as per IS 456:2000 is

(a) 25mm (b) 30mm
(c) 35mm (d) 40mm

(3) What does "415" stands for in Fe415?

(a) Tensile Strength (b) Compressive Strength
(c) Quantity of Cement (d) Water Cement Ratio

(4) Number of coplanar forces passing through one point are

(a) Parallel forces (b) Concurrent forces
(c) Spatial forces (d) Perpendicular forces

(5) Beam is designed for

(a) Tension (b) Shear Force
(c) Bending Moment (d) Axial Load

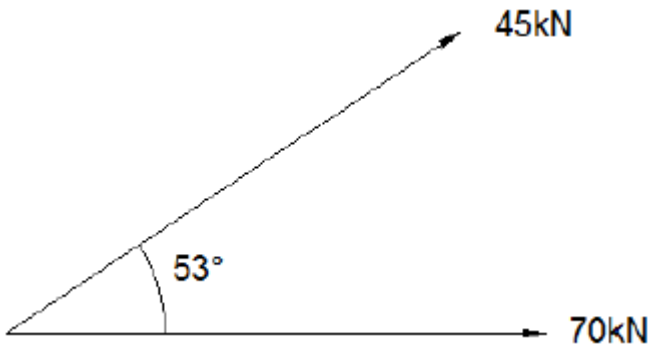
(6) The ratio of Stress and Strain is given as

(a) Bulk Modulus (b) Modulus of Rigidity
(c) Modulus of Elasticity (d) Plasticity

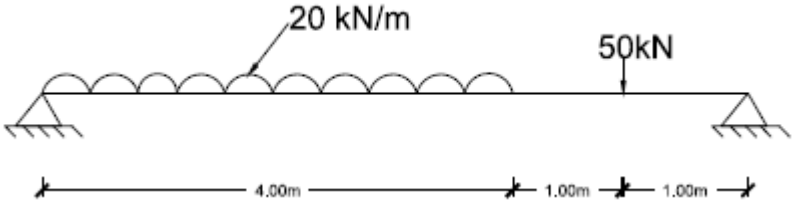
(b) Define following terms: (Any Four) **04**

(1) Plasticity
(2) Elasticity
(3) Stress
(4) Strain
(5) Tension and Compression
(6) Equilibrium Condition

Q.2 **(a)** Give the magnitude and direction for the given system of force with the help of law of Parallelogram. **05**



	(b)	Explain footing with their types and detailed sketches.	**05**
		OR	
	(b)	Explain foundation details with neat sketch.	**05**
Q.3	**(a)**	Explain Hooke's Law. Also explain stress-strain curve for mild steel with neat diagram.	**05**
	(b)	Explain types of loading patterns in the structure.	**05**
		OR	
Q.3	**(a)**	Differentiate between load bearing and frame structure.	**05**
	(b)	Enlist & Explain different types of beams according to their behavior.	**05**
Q.4	**(a)**	Give the reactions at supports.	**05**



	(b)	Explain the required considerations for designing of Beam as per IS: 456-2000.	**05**
		OR	
Q.4	**(a)**	Explain the required considerations for designing of Slab as per IS: 456-2000.	**05**
	(b)	Explain one way and two way slab with different criteria as per design.	**05**
		Explain following terms with neat sketches:	
Q.5	**(a)**	(1) Lacing (2) Battening.	**05**
	(b)	Explain different types of loads acting on high-rise building in modern world.	**05**
		OR	
Q.5	**(a)**	Define force. Explain different system of forces.	**05**
	(b)	Explain Shear wall. Give advantages and disadvantages of shear wall.	**05**

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