Seat No.: _____ Enrolment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BPLAN – SEMESTER I– • EXAMINATION – WINTER 2016

Subject Code: 1015502 **Date: 31/12/2016**

Subject Name: Fundamentals of Building Structures

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)** (1) State the condition for One way slab: _____ **06**

(a) $L_y/L_x >= 2$ (b) $L_y/L_x < 2$
(c) $L_y/L_x = 0$ (d) None of the Above

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

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

(3) What does "20" stands for in M20?

(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) It is a scalar quality

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

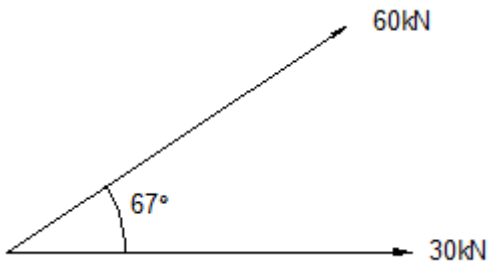
(6) The ratio of Stress and Strain is given as

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

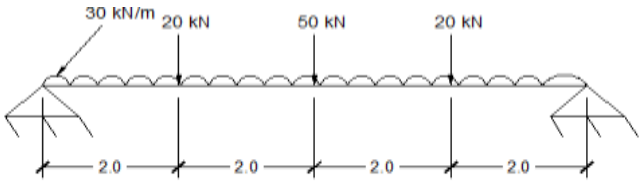
(b) Define following terms: (Any Four) **04**

(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 Hooke's Law. Also explain stress-strain curve for mild steel with neat diagram.	**05**
		OR	
	(b)	Explain types of loading on beams.	**05**
Q.3	**(a)**	Explain different types of foundations in detail with neat sketch.	**05**
	(b)	Explain types of footing for different types of buildings.	**05**
		OR	
Q.3	**(a)**	Explain Super structure and Sub structure with different components and figures.	**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 Slab as per IS: 456-2000.	**05**
		OR	
Q.4	**(a)**	Explain the required considerations for designing of Beam 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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