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B.Arch. (2012 & Onwards) (Sem.–2) THEORY OF STRUCTURES-I Subject Code:BACH-207 M.Code:45095			
Tim	ne: 3 Hrs. Max. Mark	ks : 60	
INS 1) 2) 3)	TRUCTIONS TO CANDIDATES : Attempt total FIVE questions. Question no. 1 is compulsory. Missing data, if any may be assumed suitably. Draw neat sketches wherever necessary.		
1.	a) What do you understand by Young's Modulus of Elasticity?	2	
	b) What is a Perfect Frame?	2	
	c) Define the term 'Section Modulus'.	2	
	d) State Triangle law of forces.	2	
	e) Name various Gravitational loads?	2	
	f) Differentiate between a Cantilever and Simply Supported beam.	2	
2.	Explain various loads (as per IS 875) acting on the structures.	12	
3.	Explain various Force systems acting on a body in brief with the help of sketches.	12	
4.	a) State and prove 'Theorem of Parallel Axis'.	4	
	 b) Find Moment of Inertia (Ixx and Iyy) of an unequal angle section 150mm × 10 10mm with longer leg vertical. 	00mm × 8	
5.	a) Define centroid and centre of gravity.	4	
	b) Find Moment of Inertia (Ixx and Iyy) of an inverted T-section 150mm × 15 10mm.	50mm × 8	
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6. a) Derive the 'Basic Equation of Bending'.

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- b) A simply supported rectangular beam 75×100 mm of 5m span placed with longer leg vertical, carries a u.d.l. of 5kN/m over the whole span. Calculate the maximum bending stress developed in the section. 6
- A simply supported beam of span of 12m span carries a concentrated load of 4 kN, 5 kN and 3 kN at distance of 3m, 6m and 9m respectively from left hand support. Calculate maximum shear force and bending moment. Also draw SFD and BMD.
- 8. Write short notes on :

a) Neural Axis	3
b) Moment of Resistance	3
c) Young's Modulus of Elasticity	3
d) Shear Modulus	3

9. Explain classification of frames in brief. What are the assumptions made for the analysis of frames? 12

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.