## SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

## SEMESTER END EXAMINATIONS (REGULAR), NOVEMBER-2015

## B. ARCH, IV YEAR, VII SEMESTER

## TS 7: THEORY OF STRUCTURES

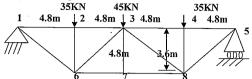
Time	e – 3.00 Hours Maximum Marks -	Maximum Marks - 100			
b	) Answer any <u>Four questions out of 1 to 7</u> questions. ) Question No. 8 is compulsory and <u>answer any four</u> out of six sub-questions. ) Scientific calculator is allowed.				
Q1.	<ul><li>a) Mention any four systems of structures which can take the gravity loads and draw their sketches.</li><li>b) Mention any four lateral load resisting systems and draw their sketches.</li></ul>				
Q2.	Draw the sketch of a two room building that is used in United States with wooden members for residential purpose. Also draw the sections at foundation and eve's level. Building should have a canopy.				
Q3.	What are the pre-tensioned pre-stressed concrete and post-tensioned pre- stressed concrete and write their advantages and disadvantages. Draw typical sketches depicting pre-stressing systems used in both post-tensioned and pre- tensioned pre-stressed concretes.				
Q4.	Draw the structural systems used in high rise structures and briefly explain them how they work.				
Q5.	Part of roof structure of an industrial building is subjected to point loading as shown in figure below.  15.1 30.2 30.2 30.2 30.2 30.2 30.2 30.2 30.2	20M			
	33.8 33.8 33.8 33.8 33.8 33.8 33.8 33.8				
	10 nos 3m bays = 30m.				

Analyse the structure using statically determinate analysis and draw the bending moment diagram.

P.T.O

(All the loads are in KN)

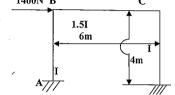
O6. Find the forces in the members 1-2, 2-3, 1-6, 2-6, 3-6, 6-7, & 3-7 of the following truss using method of sections.



Q7. Analyse the frame shown in the figure below and find reactions at supports and moments at significant locations and draw the bending moment diagram with values. 1400N B

20M

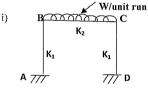
20M

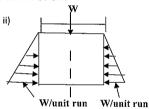


O8. a) Write rules and approximations made while analyzing symmetrical portal

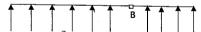
(4x5M =20M)

b) Draw the equivalent frames for analysis of the frames shown below.





- c) Give the classification of shell roofs and define the relevant terms.
- d) Discuss the advantages and disadvantages of shell roofs versus slab beam type of roofs.
- e) Draw the critical loading conditions for maximizing support moment at A('-'ve'), moment in column at A, positive and negative moments at 'B'



Using moment distribution, find maximum '-'ve bending moment at joint I

₩E	<b>₩ F</b>	<b>4</b> 4 <b>G</b>	4/ H
I 2K	J 2K	K 2K	2K L
4K	2K		3K
2k	2k	2k	2k
M	77/7 N	///o	P
8m	3m		5m
		7	1

Total dead load=25KN/m, 23KN/m & 24KN/m on pans IJ, JK & KL Respectively.

LL=20KN/m on all Spans.