

07 – 05 – 2015

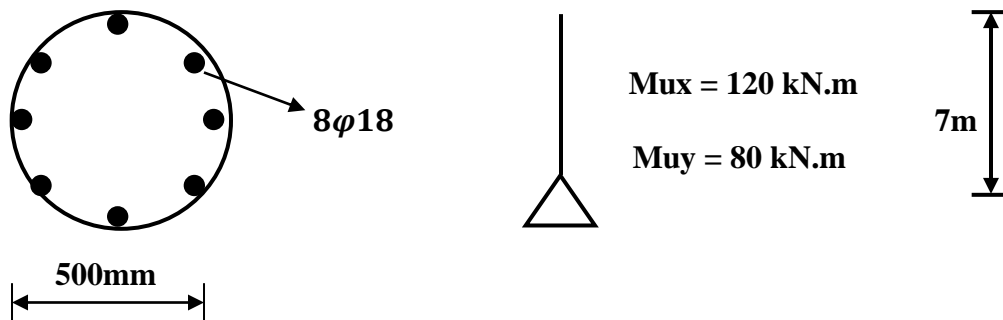
18 – 7 - 1436

MIDTERM EXAMINATION

Name:

1- (25 points) IS THE COLUMN ADEQUATE FOR THE GIVEN LOADS.

fy MPa	f _c MPa	Pu kN	K	β	γ	Ø _C	I _{Cir}
400	30	1000	1	0.6	0.8	0.7	$\frac{\pi r^4}{4}$



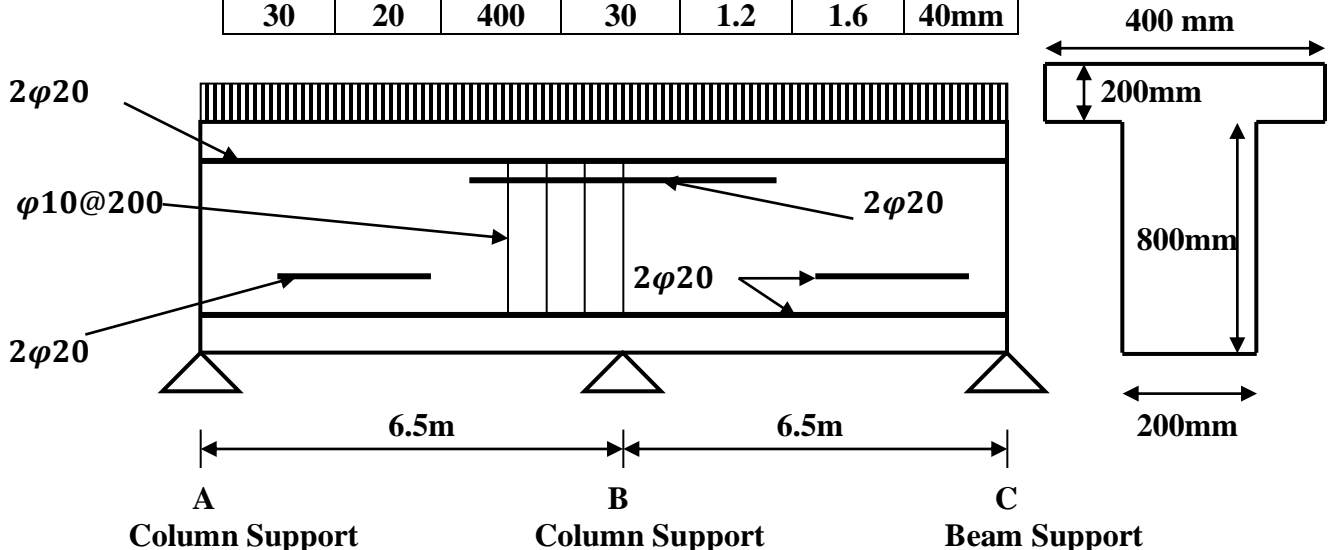
BRACED FRAME

2- (25 points)

Is the continuous beam adequate for the given loads (Bending, shear, and cracking). Add skin reinforcement if needed, show cross section detailing.

Neglect beam own weight

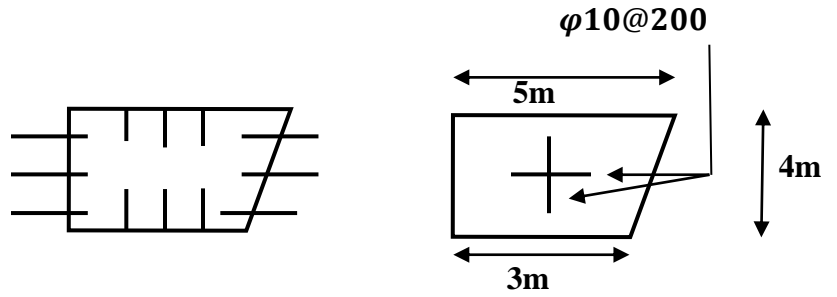
DL kN/m	LL kN/m	Fy MPa	F _c MPa	DLF	LLF	Clear Cover
30	20	400	30	1.2	1.6	40mm



3- (20 points) Determine W_U max (Coeff. Method & yield line) the Panel can resist.

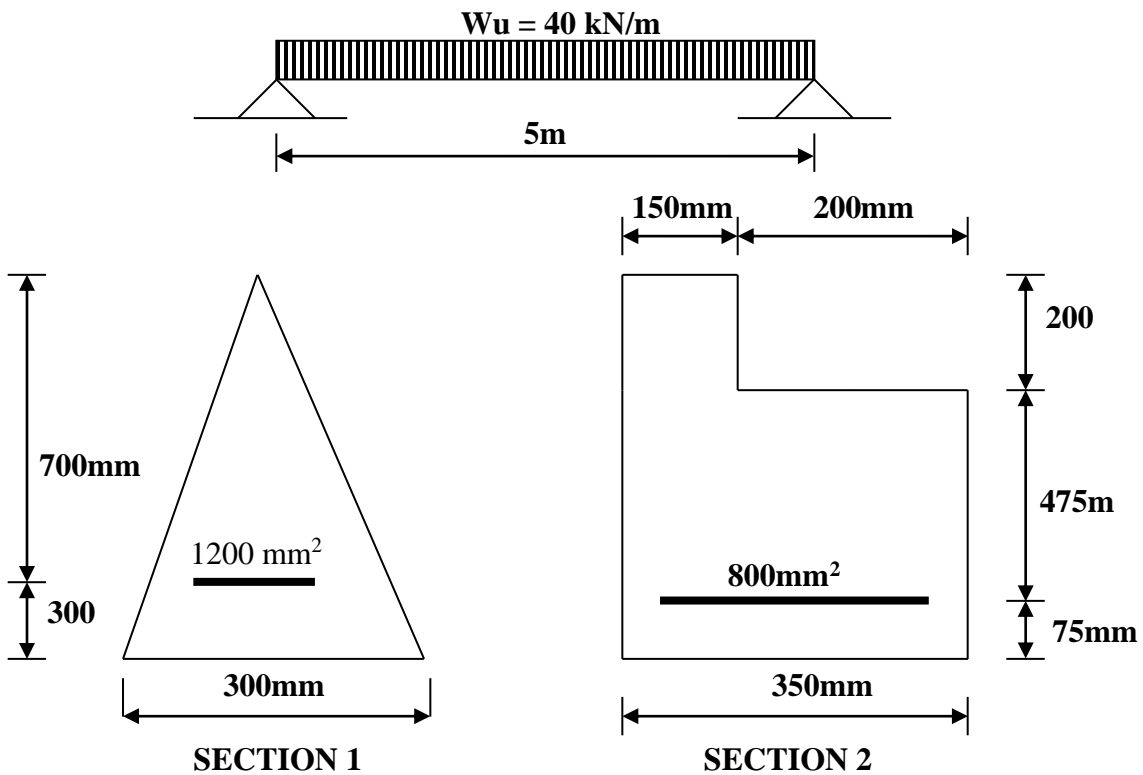
$d' = 30\text{mm}$
 $h = 160\text{mm}$

$\phi 10@100$ mm all



4- (20 points) SELECT THE MOST ECONOMICAL SECTION (BENDING).

$F_y = 400 \text{ MPa}$, $f_c = 30 \text{ MPa}$, $E = 200000 \text{ MPa}$



5- (10 points) IS THE COLUMN ADEQUATE FOR THE GIVEN LOADS.

$P_u = 1200 \text{ kN}$
 $M_{ux} = 300 \text{ kN.m}$
 $M_{uy} = 150 \text{ kN.m}$

$\phi_c = 0.7$

$d' = 70\text{mm}$

