جامعة قطر
QATAR UNIVERSITY

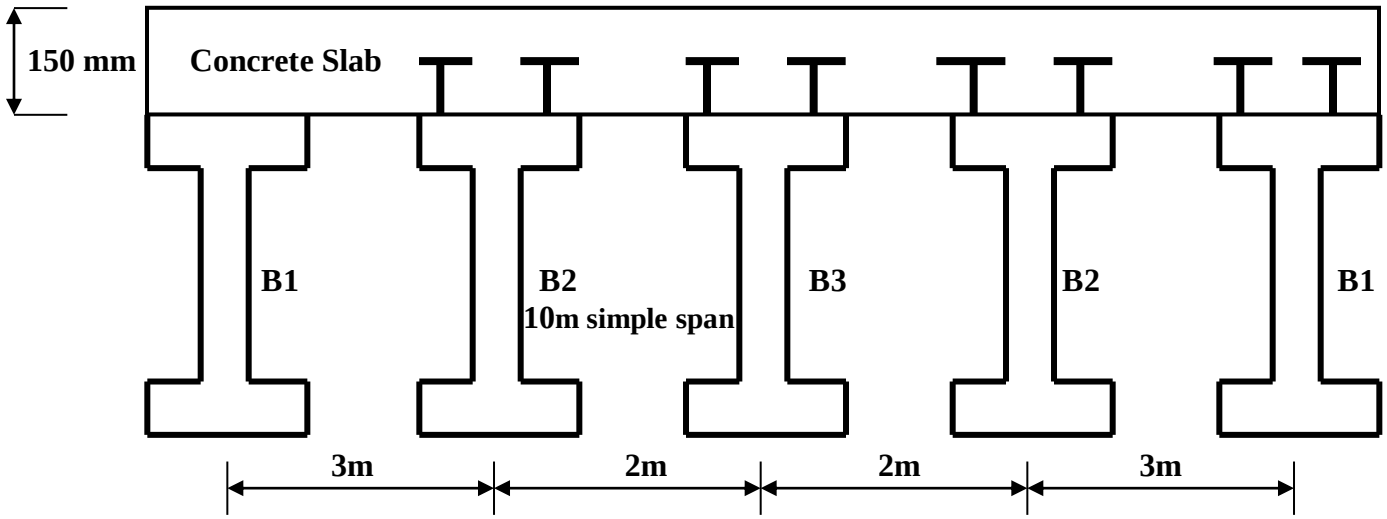
**Design of Steel Structures CVEN- *420***

**09- 12 -2015** **MIDTERM EXAMINATION** **27- 2 -1437**

***Name:*** ……..

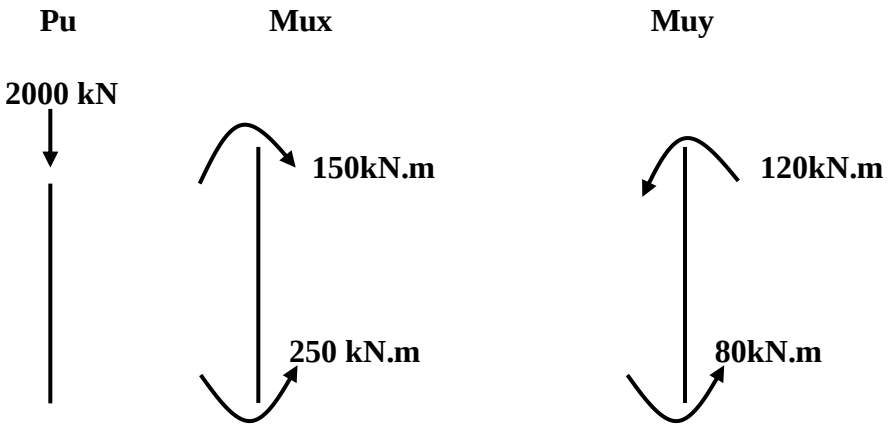
**1- ( 25 points) Using the composite design tables select the most economical steel section for B2.**

| Fy (MPa ) | F`c(MPa ) | DL ( kN/m) | LL (kN/m) | $\Delta_{CODE}$(LL) |
|---|---|---|---|---|
| 250 | 25 | 15 | 10 | $\frac{L}{240}$ |




**Complete Design and Detailing is required.**

**2- (a- 20 points) Select the most economical W section for the given loads.**




$$kly = klx = 7.5\ m\ , \qquad Fy = 250\ MPa\ , \quad E = 200 * 10^6\ \frac{kN}{m^2}$$

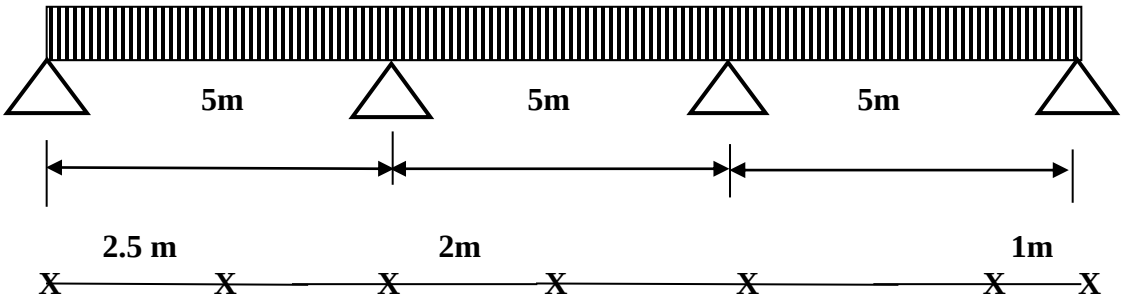
**(b- 5 points) Will it makes a difference in the design if klx = 10m and kly = 7.5m**

**3 - (25 points) Is W 310 X 38.7 adequate for the given loads.**

$$Mmax = \frac{WL^2}{10} \ , \ \Delta max = 0.0069 \frac{WL^4}{EI} \ , Vmax = 0.6WL \ , \ \Delta_{code}\ LL = \frac{L}{240}$$

**X = BRACING , $C_b$ =1**

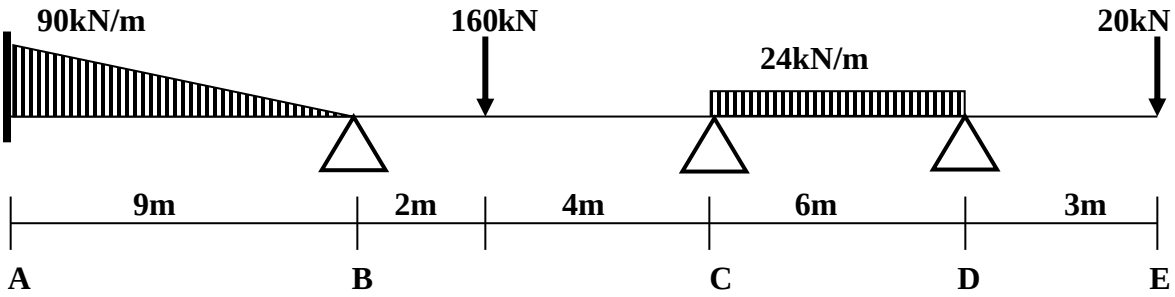
**$W_D$ = 15kN/m , $W_L$ = 10kN/m , Fy =250 MPa , E = 200000 MPa**




**Complete Design and detailing is required.**

**4 - (25 points) Select the most economical W section using Plastic method.**

**a)**




**b)**