Date ...../...../..... No ....

محاضرة ٣

$$W_e = W_i$$

$$1 \times \delta = \Sigma F_i \times \Delta L$$

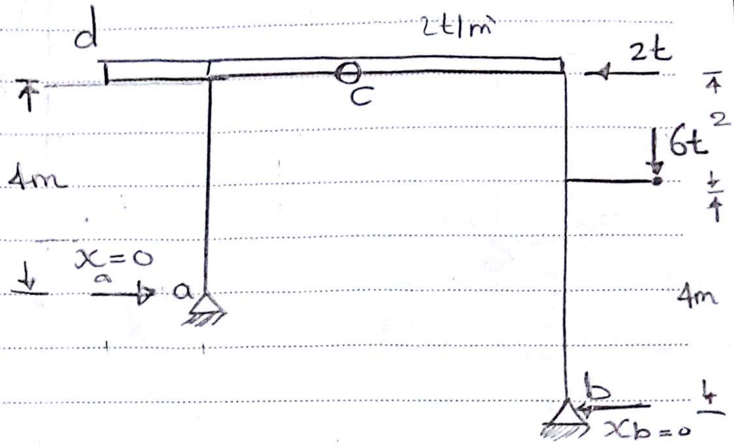
$$1 \times \delta_d = \int \frac{M_1 M_0}{EI} dx$$

$$1 \times \delta_d = \frac{1}{EI} \times \Big[-(8\times12)\times(2/3)$$

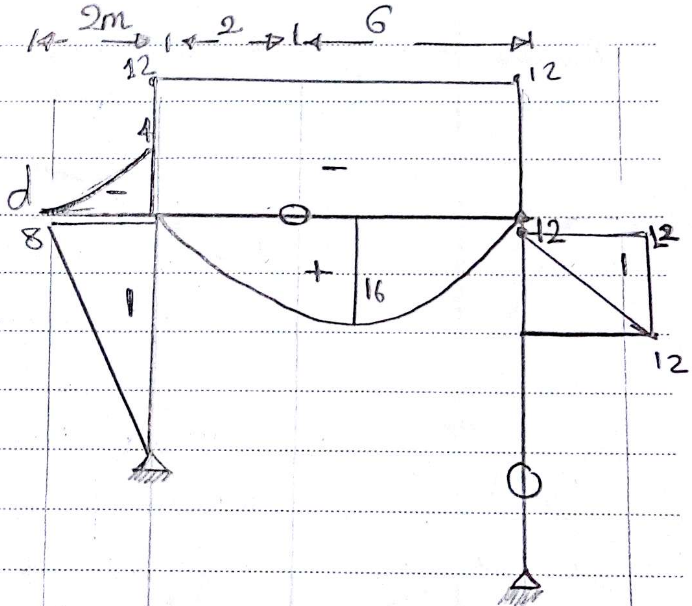
$$+ (2/3 \times 8 \times 16)\left(\frac{2}{3}\right) + (1/3 \times 2 \times 4)\times\left(\frac{3}{4}\times 2\right)$$

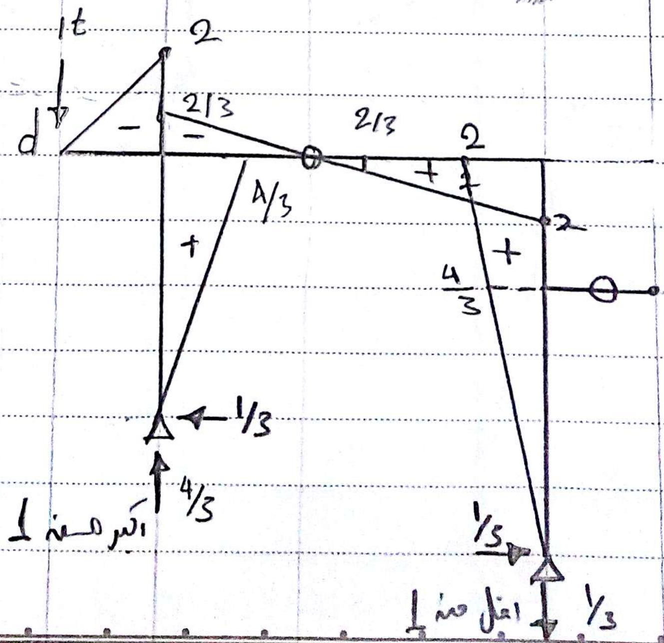
$$-(1/2 \times 4 \times 8)\times\left(2/3 \times \frac{4}{3}\right)$$

$$-(2\times12)\times\left(\frac{4/3+2}{2}\right)\Big] =$$



$M_o =$





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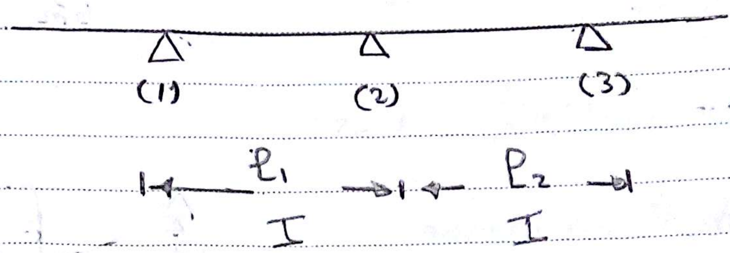
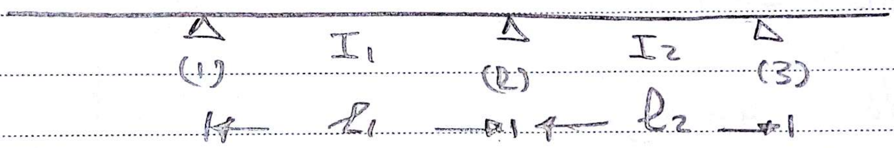
(Three Moment equation)

Case (1)   Case of Constant I



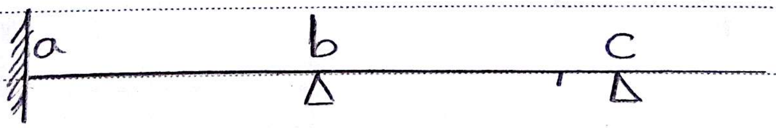
$$M_1 L_1 + 2M_2(l_1 + l_2) + M_3 l_2 = -6 R_2 \text{ elastic}$$

Case (2)   Case of variable (I)



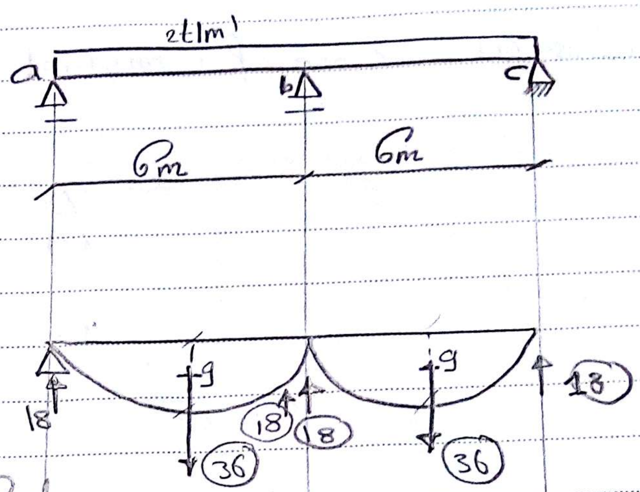
$$M_1 \frac{l_1}{I_1} + 2M_2\left(\frac{l_1}{I_1} + \frac{l_2}{I_2}\right) + \frac{M_3 l_2}{I_2} = -6 * \left(\frac{R_{2el}}{I_1} + \frac{R_{2el}}{I_2}\right)$$

Case (3)   : Case of Fixed end Support



Date ..../..../.... No ....

Example ①



for B.M.D ارسم ال
↳ each span as Simple Beam)

٢- اجيب ال elastic waght

3 Moment equation
Constant I

$M_1 l_1 + 2M_2(l_1 + l_2) + M_3 l_2 = -6R_2 d$

$M_1 = 0$

$M_2 = M_b$

$M_3 = 0$ $R_2 = 18 + 18 = 36$

$0 + 2M_b(6+6) + 0 = -6 * 36$

$24 M_b = -6 * 36$

$M_b = -9 \, m.t$

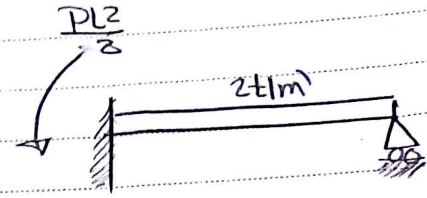
equal span - Contenous Beam uniform Load

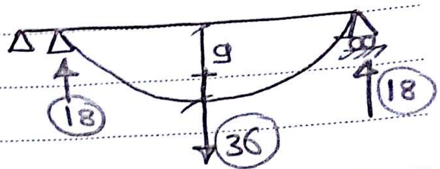
$$M_b = -\frac{PL^2}{8} = \frac{-2 * 36}{8} = -9$$

and Slope = Zero

$0 + 2(M_a \times (0+6)) + 0 = -6 \times 18$

$M_a = -9 \, m.t$





مثال ٢_٧ ص ٩٩