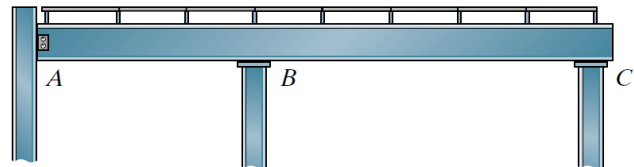


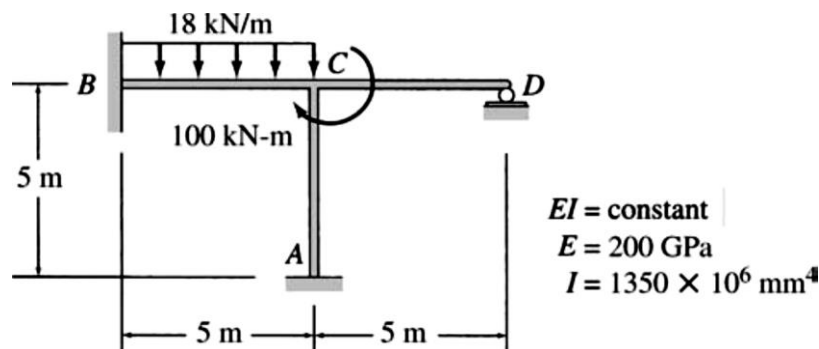
*پاسخ کامل سوالات چهارگزینه‌ای نوشته شود.

1- The roof is supported by joists that rest on two girders. Each joist can be considered simply supported, and the front girder can be considered attached to the three columns by a pin at A and rollers at B and C. Assume the roof will be made from 10 cm-thick cinder concrete, and each joist has a weight of 200 kgf. According to code the roof will be subjected to a snow loading of 150 kgf/m^2 . The joists have a length of 8 m and their distance is 0.9 m. Draw the shear and moment diagrams for the girder. Assume the supporting columns are rigid.



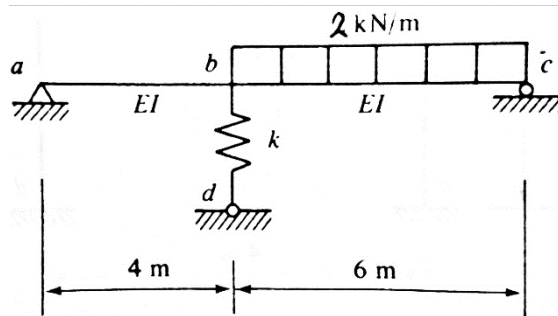
Ref: Hibbeler, R.C. Structural Analysis, 9th Ed.

2-Determine the member end moments and reactions for the frame in Figure by using the slope-deflection method. Draw moment diagram for the members.



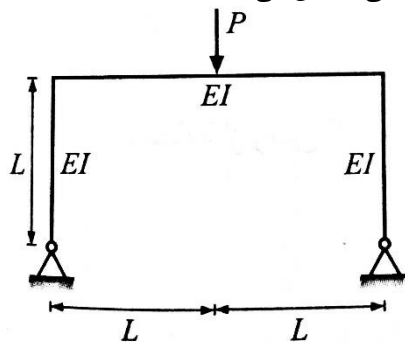
Ref: A. Kassimali, structural Analysis, 5th Ed.

۳- برای سیستم و بارگذاری نشان داده شده در شکل، با روش شیب-افت نیروی فنر را بدست آورید. $EI=2 \times 10^8 \text{ KN.cm}^2$ و سختی محوری فنر $k=8 \text{ KN/cm}$ فرض شود.



Ref: Elementary theory of structures, yuan-yu Hsieh ترجمه مجید بدیعی

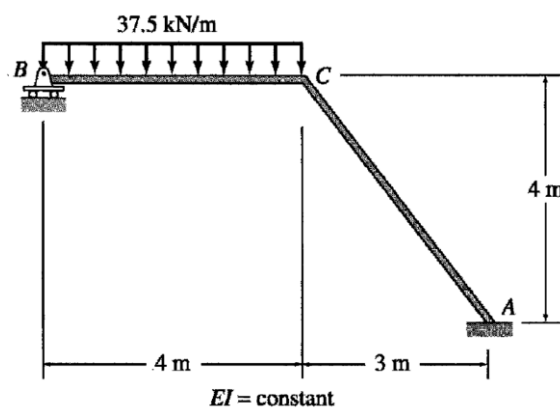
۴- مقدار نیروی برشی در پای ستون‌ها چه مقدار است؟ (تمامی اعضا دارای صلبیت خمشی یکسان می‌باشند).



- (۱) $\frac{3p}{16}$
- (۲) $\frac{p}{2}$
- (۳) $\frac{3p}{32}$
- (۴) $\frac{p}{4}$

مرجع: آزمون محاسبات ۹۴

5- Determine the member end moments and reactions for the frame shown in figure by using the slope-deflection method.



Ref: A. Kassimali, structural Analysis, 5th Ed.