

Semester: 2023-24 (Even Semester) Year (Backlog)

Semester: 4th (Year – 2nd)

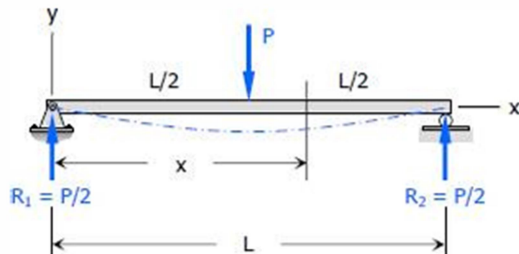
Mid-1 Semester Examination

Time: 1.5 h

Maximum marks: 30

Section-A

1. A simply supported beam subjected to point load at mid point of beam.

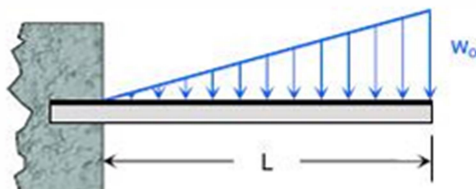


- (a) Find the slope at mid-point.
- (b) Find the deflection at mid-point.
- (c) Draw shear force diagram.
- (d) Draw bending moment diagram.

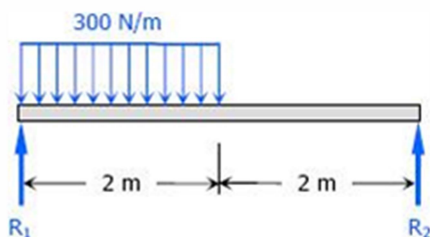
[2.5 + 2.5 + 2.5 + 2.5]

Section-B

2. Find the equation of the elastic curve for the cantilever beam as shown in fig below. It carries a load that varies from zero at the wall to w_0 at the free end. Take the origin at the wall.



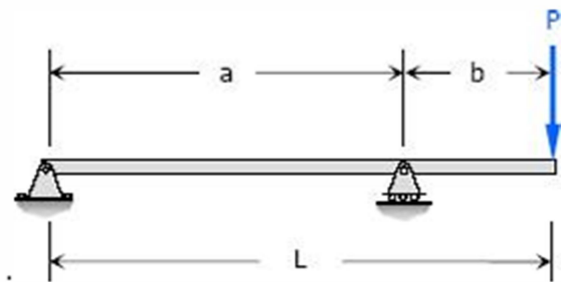
3. Compute the value of $EI \delta$ at midspan for the beam loaded as shown in figure below. If $E = 10 \text{ GPa}$, what value of I is required to limit the midspan deflection to $1/360$ of the span?



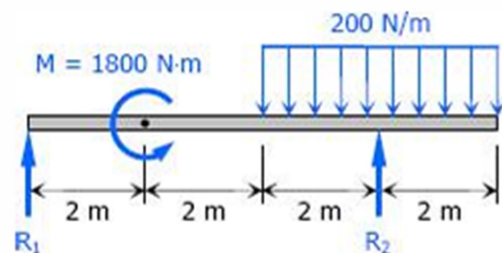
[4 + 4]

Section-C

4. For the beam loaded as shown in figure below, determine (a) the deflection and slope under the load P and (b) the maximum deflection between the supports.



5. Determine the value of EI midway between the supports for the beam loaded as shown in figure below.



[6 + 6]