

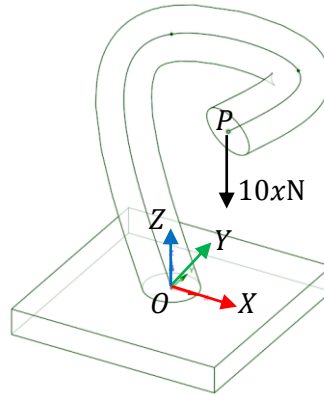
**Amrita School of Engineering, Bengaluru Campus, Amrita Vishwa Vidyapeetham**  
**19PHY104: Computational Engineering Mechanics-1**

**Topic: Moment and Beams**

**Maximum Marks: 10 (all questions carry 2.5 marks each): Use of backside and extra sheet allowed**

1. Derive the equation for couple between two equal and opposite forces separated by a distance.

3. Determine the moment at point  $O$  for a vertically downward force at  $P$  with magnitude  $10x$ .  $P$  has coordinates  $x$ ,  $x$  and  $2x$  along the  $X$ ,  $Y$  and  $Z$  axes respectively. 'x' is the last 2 digits of your registration number.



2. Write short notes on the following supports and loads in beams and frames. Draw appropriate diagrams.

(a) Pin support (b) Roller support (c) Point load (d) Uniformly Distributed Load (UDL) (e) Uniformly Variable Load (UAL)

4. Determine the reaction forces at the supports. 'x' is the last 2 digits of your registration number.

