

Instructions :

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q. 1** **A** Fill in the blanks. **3**
1. The forces which meet at one point and have their lines of action in different planes are called _____
 2. If the shear force along a section of a beam is zero, the bending moment at the section is _____
 3. Circle has _____ axis of symmetry.
- B** Differentiate between the following : **3**
1. Coplanar concurrent and Coplanar non-concurrent system of forces.
 2. Resultant and Equilibrium
- Q. 2** **A** A cord supported at A and B carries a load of 20kN at C and a load of W at D as shown in **fig 1**. Find the value of W so that CD remains horizontal. **3**
- B** Enlist the Centroid of various standard geometrical linear element along with sketches and values. **4**
- OR**
- B** Determine magnitude and direction of resultant force for given system in **fig 2**. **4**
- Q. 3** **A** Calculate Support Reactions for beam shown in **fig 3**. **3**
- B** Draw Shear force diagram and Bending moment diagram for beam shown in **fig 3**. **4**
- OR**
- Q. 3** **A** Explain different types of beams and supports with neat sketches. **3**
- B** Locate the centroid of a composite element w.r.t. point O as shown in **fig. 4**. **4**

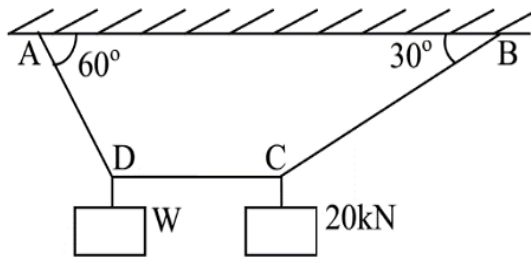


fig. 1

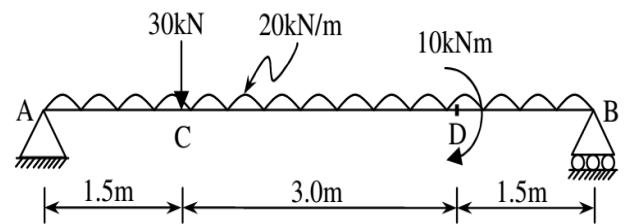


fig. 3

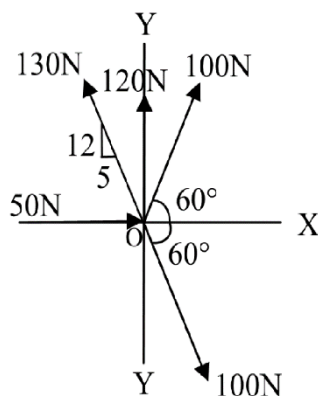


fig. 2

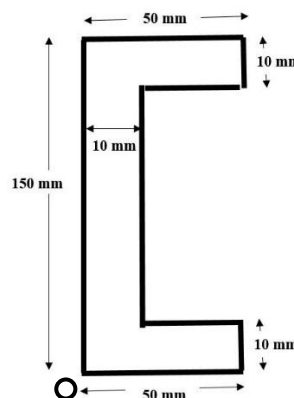


fig. 4