

Model Question Paper-I (Revised Syllabus)

Note: Answer FIVE full questions choosing at least TWO from each Part.

Part – A

1. (a) Discuss briefly the impact of civil engineering infrastructure facilities on socio-economic development of a country.
(b) Briefly explain the scope of geotechnical engineering.
(c) Explain different types of roads.
(d) Distinguish between overflow and non-overflow dams.
2. (a) Explain the following terms:
 - (i) Particle
 - (ii) Continuum(b) State the
 - (i) Principle of physical independence of forces
 - (ii) Principle of superposition of forces.(c) Three couples are acting on the brackets *C*, *D* and *E* attached to a bar *AB* as shown in the Fig. 1. Determine the resultant moment due to these couples on the beam at *A*.

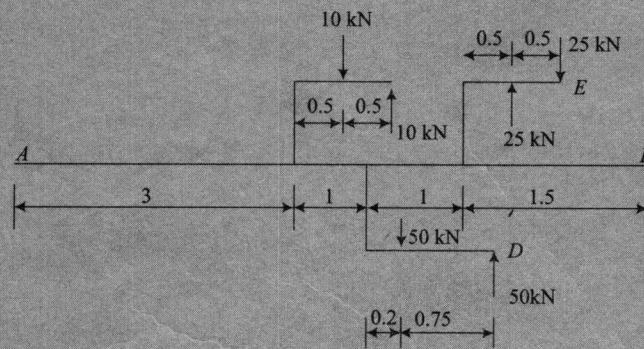


Fig. 1. (All distances are in m)

- (d) A 100 N vertical force is applied on a shaft at *A* as shown in Fig. 2. Determine the effect of 100 N force at *O*.

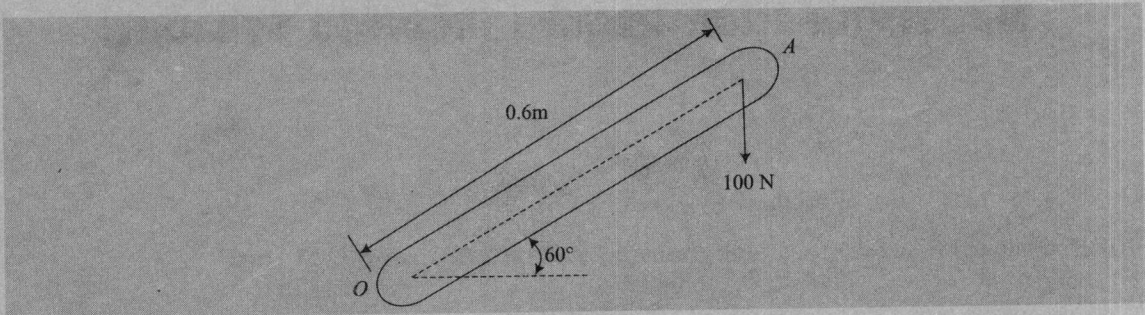


Fig. 2

3. (a) The force 390 N shown in Fig. 3 is the resultant of four forces. Out of them, three are shown in the figure. Find the missing force and its position.

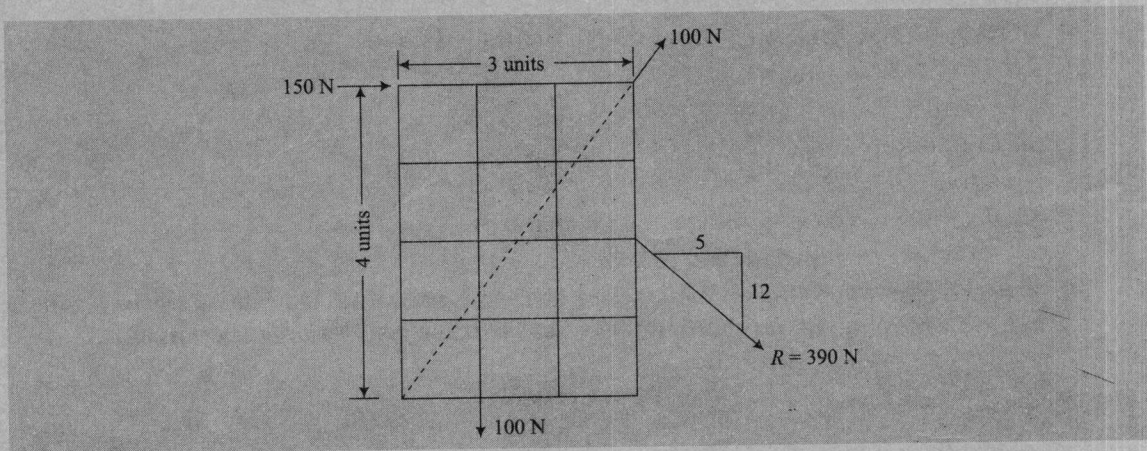


Fig. 3

(b) Four forces are acting on a bolt shown in Fig. 4. Determine the magnitude and direction of the resultant.

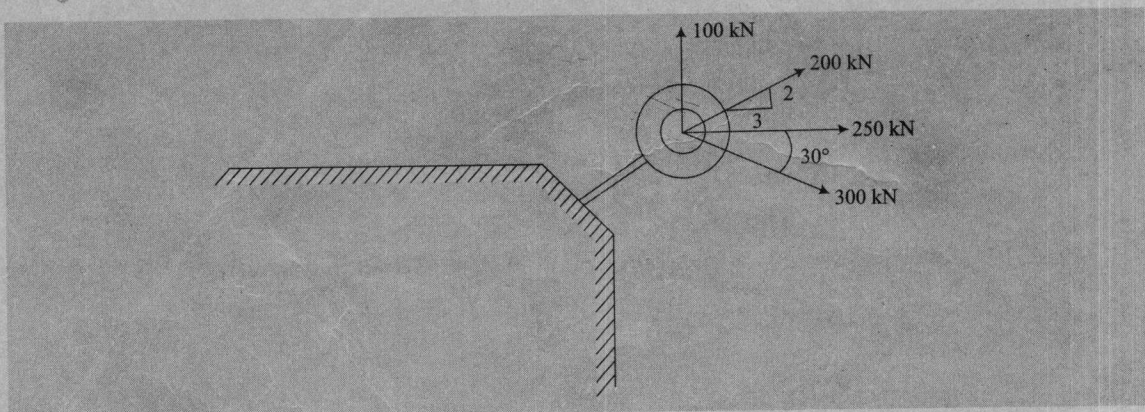


Fig. 4