

- Q.7.** A rectangular plate 1 m wide and 1.5 m deep is held vertically in water so that its upper horizontal edge is 1.25 m below the free surface. Find the total water pressure on one face of the plate and depth of centre of pressure.
- Q.8.** A Pitot tube is mounted on an airplane to indicate the relative speed of the plane. What differential pressure intensity will the instrument register when the plane is travelling at a speed of 200 km/hr in a wind blowing at 60 km/hr. Against the direction of motion of the plane? Take sp.wt. of air as 11.9 N/m^3 . Assume $C_v=0.98$.
- Q.9.** A plate of 1m x 1 m moves through air of density 1.15 kg/m^3 at 36 km/hr. determine the drag Force, lift force and resultant force. Take $C_d=0.18$ and $C_l=0.70$ **10x2=20**

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