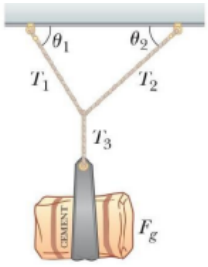
DEPARTMENT OF COMPUTER SCIENCE AND IFORMATION TECHNOLOGY
BACHELORS COMPUTER SCIENCE AND INFORMTION TECHNOLOGY
APPLIED PHYSICS (PH-122)
ASSIGNMENT -1

1. Find if A = $(6xy + z^3)\hat{\imath} + (3x^2 - z)\,\hat{\jmath} + (3xz^2 - y)\hat{k}$ is irrotational ?
2. If $\vec{V} = yz^2\,\hat{\imath}$ - $3xz^2\,\hat{\jmath}$ + $2xyz\hat{k}$ and Ø(x,y,z) = xyz.Prove that $(\vec{V} \times \nabla).\emptyset = \vec{V} \times (\nabla.\emptyset)$
3. A bag of cement weighing 325 N hangs from three wires. Two of which make an angle 60.0° and 40.0° with the horizontal respectively. If the system is in equilibrium, calculate tension in the wires.



4. A 5.0-kg iron rod is on a level surface where $\mu_s = 0.40$ and $\mu_k = 0.30$. A 11.35-N force is being applied to the rod parallel to the surface. if it will remain at rest, or begin to slide. If the block was originally ,
   a. moving, and the 11.35-N applied force is in the direction of motion,
   b. at rest.
5. On applying 12.0 N force to a 8.00 kg block if coefficient of static friction between block and floor is μ_s= 0.700 and the coefficient of kinetic friction is μ_k = 0.400. Will the block begin to slide, or does it remain stationary?