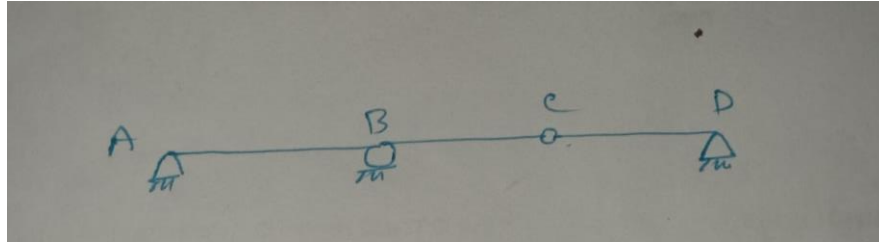


Bangladesh oil, gas & mineral corporation (Petro Bangla)

1. Draw I.L. diagram at reaction at A of the following beam



2. Ratio 1:2.5:4.5. concrete volume 100 cft. Determine the number of other ingredients (by volume)
3. Draw schematic relationship between access and movement function
4. Given the utility of the individual modes for bus, auto, and truck are 0.47, -1.525, and -2.5 respectively. Determine mode share probabilities using a basic logit model
5. A sample of dry sand was tested in direct shear apparatus under a normal load of 36 kg. the sample failed under a shearing load of 58lb. the sample size was 2" x 2". What is the angle of internal friction?
6. Sketch the Algae bacteria symbiosis in a facultative pond
7. Calculate the uniform flow depth and critical depth for a wide rectangular channel with a bed slope of 0.00017 and a per unit width discharge of 2 m²/sec. manning's roughness co-efficient = 0.018
8. Gap fillings
 - => value of bearing capacity factor Nc for deep foundation
 - => unconfined compressive strength of soft clay soil in its undisturbed and remoulded state are 100 kn/m² and 50 kn/m². Sensitivity of the clay
 - => the effective angle of internal friction (ϕ) of a soil is 30°. Co-efficient of active earth pressure of the soil is
9. A nine-pile group consisting of 24" dia concrete piles were cast in situ in clayey soil, whose unconfined compressive strength is 1000 lb/ft². Each pile is 50ft. using a reduction factor $\alpha=0.5$. the factor of safety 3. Determine the allowable skin friction of a single pile