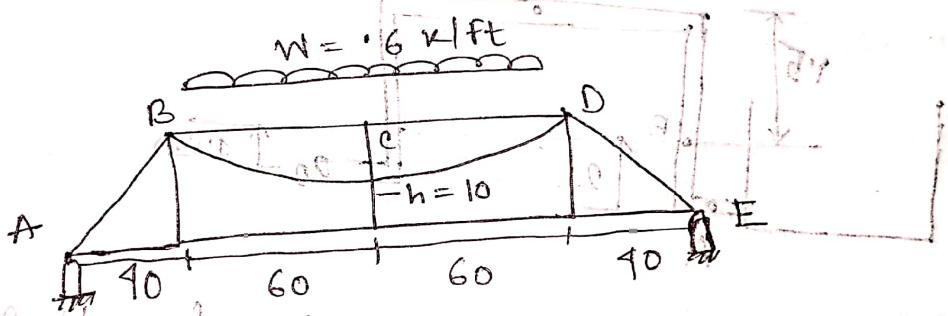
BWDB – 20.

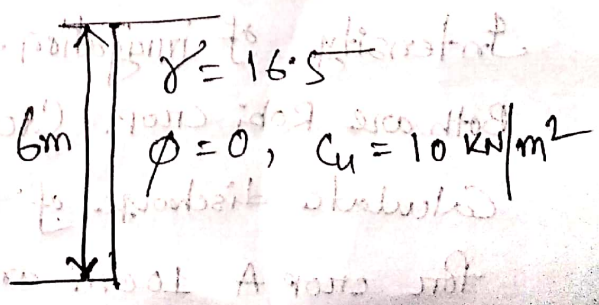
1. Sieve Analysis was performed on a soil in the lab — Determine fineness modulus.

Sieve Size	3/8	4	8	16	30	50	100	150	200	Pan
Soil retained	0	20	10	30	40	30	40	20	10	0

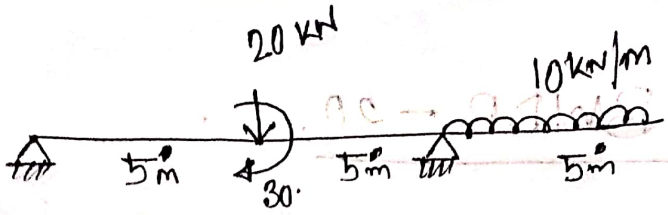
2. Cable support roof carries a uniform load $W = 6$ K/~~ft~~ ft. Cable sag at mid span is set 10ft. find max tension in Cable betn point B and D.



3. Retaining wall in soft & saturated clay. backfill. for undrained Condition $\phi = 0$. & backfill. ⓐ determine max depth of tensile crack, ⓑ Active thrust Pa per unit length before the tensile crack occur. ⓒ ~~Active~~ thrust Pa per unit length after tensile crack occur.

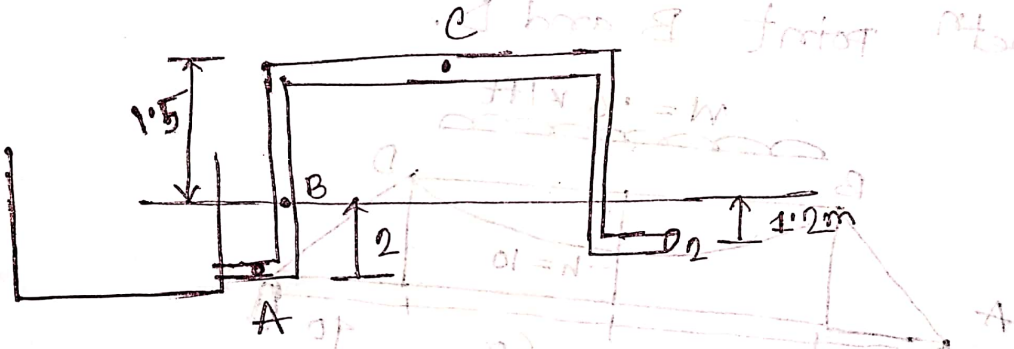


4. SF & BMD,



5. Waramangundi tennery waste water flow of 0.011 m^3/s BOD_5 mg/L discharge into Djanggawul creek. Creek has 10y, 7 days low flow 1.7 m^3/s. Upstream tennery BOD_5 of creek is 0.6 mg/L. K = 0.115/d for ⟶ and 3.7 day creek. Calculate initial ultimate BOD after mix.

6.



open tank of water has pipeline of uniform dia 2m. leading from it as show in figure. Neglect friction. determine velocity of water in pipe & pressure at A, B, C point.

10. Water course has culturable area 1200 ha. Intensity of irrigation. for crop A is 40%, B is 35%. Both are Robi crop. Crop A Kor period 20 days & B 15 days. Calculate discharge of water course if the Kor depth for crop A 10 cm and B 16 cm.

7. Calculate scour depth of river having width 500 m. Unit discharge 50 $m^3/s/m$. $d_{50} = 0.1$ mm. design discharge 80% of bank full discharge.

8. Flood frequency for river at certain location by using Gumbel distribution yielded peak flood as 40809 m^3/s. 46300 m^3/s for 50 year. 100 year return period respectively Estimate the design flood magnitude for return period 500 year. Also determine the design scouring depth using Laceys regime eqn if d_{50} of bed material is .005 cm.

9. 3 pumping well located along a straight line are spaced at 200 m apart. What should steady state pumping rate from each well so that the near steady state drawdown in each well will not exceed 2 m. Transmissivity of confined aquifer all fully penetrate is 2400 m^2/d. All the well are 40 cm dia. Thickness of aquifer 40 cm radius of influence of each well 800 m.