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SSC JE 2022 Pre QUALIFIED Result


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SSC JE 2022 Mains

Civil Engineering

Previous Year Questions

SET-18

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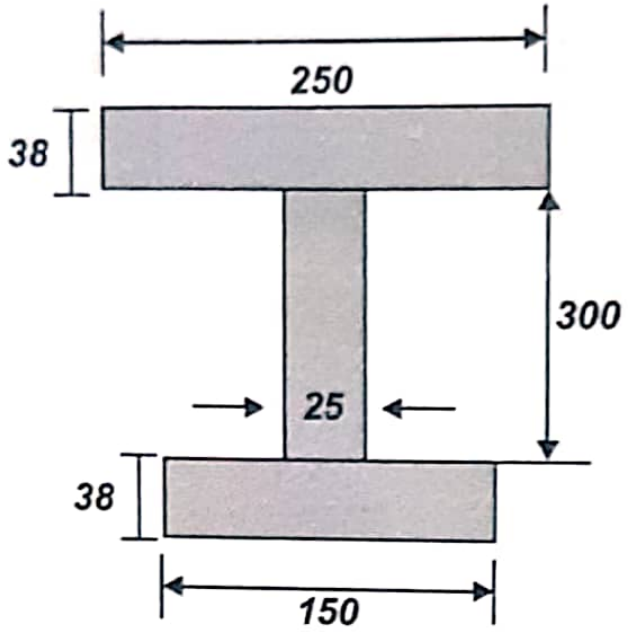
-28: Calculate the moment of inertia and z of the steel section given below. What is the maximum Bending moment that it can carry safely. Assumed that the value of yield stress, f_y for the structural steel is 250 N/mm^2(MPa).



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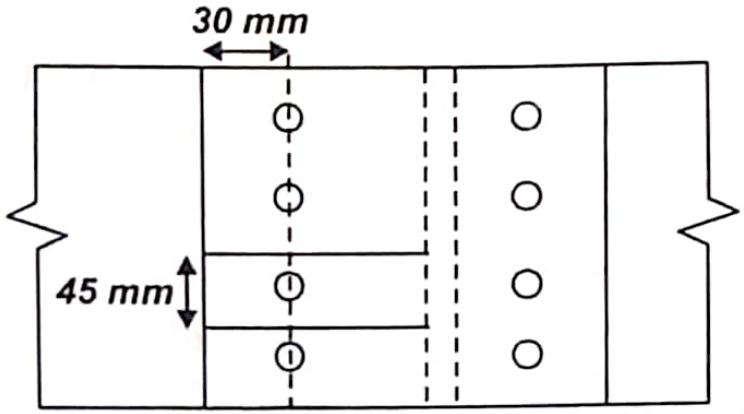
Q-24: A single-bolted double cover butt joint is used to connect two plates which are 8 mm thick. Assuming 16 mm diameter bolts of grade 4.6 and cover plates to be 6 mm thick, calculate the strength and efficiency of the joint, if 4 bolts are provided in the bolt line at a pitch of 45 mm as shown in the figure below. Take the end distance of the fastener along bearing direction as 30 mm.



[40 Marks, SSC JE 2015]

Sol:

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Subject Name	2016	2017	2018	2019	2020
Building Material & Construction	15	10	10	25	30
Estimation & Costing	0	10	15	20	15
Surveying	30	30	15	35	15
Soil Mechanics	75	75	80	50	90
Hydraulics	30	30	15	30	30
Irrigation & Hydraulogy	15	50	75	20	45
Transportation Engineering	30	30	30	30	30
Environment Engineering	50	15	15	30	15
SOM + Structure Analysis	40	25	20	30	20
Concrete Technology	0	20	20	30	0
RCC	50	40	40	30	40
Steel Structure	25	25	25	30	30

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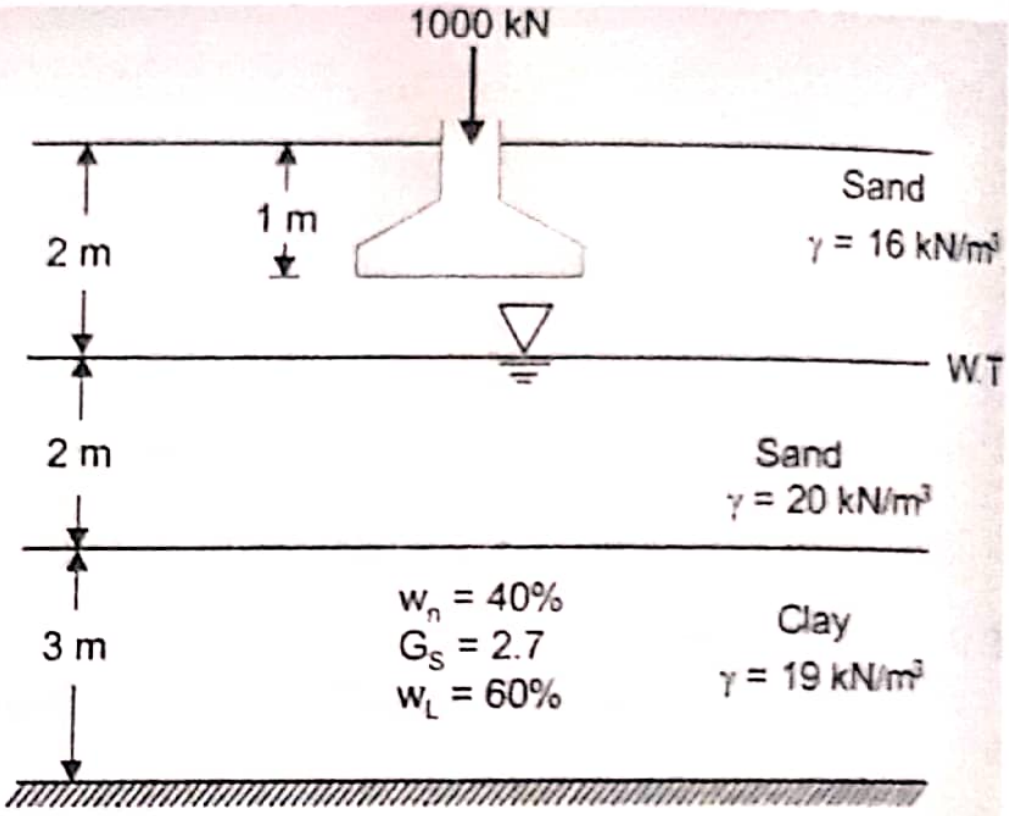
Thus the bottom of the raft should be placed at a depth of 6.55 from the ground surface.

14. *The subsoil profile of a proposed site of construction is shown below, a square footing of 2m × 2m carries a load of 1000 kN and is laid with its base at 1m depth below ground surface assuming that post construction settlement in sand is negligble determine the consolidation settlement of clay layer on account of construction. There is geological evidence, clay is NC, use 2 vertical and 1 horizontal for load dispression to estimate the stress increase in clay layer.*



Rock Soil Profile

[10 Marks]

Sol

USE MAX DISCOUNT CODE Y579

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Design an irrigation channel to carry 50 cumecs of discharge. The channel is to be laid at a slope of 1 in 4000. the critical velocity ratio for the soil is 1.1. Use Kutter's rugosity coefficient as 0.023.