

BITT POLYTECHNIC

GETLATU, RANCHI

DEPARTMENT OF CIVIL ENGINEERING

ASSIGNMENT NO- 1

TRANSPORTATION ENGINEERING

CIV406

DATE :- 16.03.2020

DATE OF SUBMISSION:- 26.03.2020

Q.1 Explain the classification of roads as per IRC. State and explain different types of survey to be conducted while locating a highway.

Q.2 Define road alignment and mention any eight factors that influence the highway alignment in plain areas.

Q.3 Define Camber & its advantages?

Q.4 Calculate the SSD on a highway at a descending gradient of 4% for a design speed of 60Kmph. Assume reaction time of driver = 2.5 sec & f = 0.4.

Q.5 Overtaking and overtaken vehicles are at 70 and 40 kmph respectively. find (i) OSD (ii) min. and desirable length of overtaking zone (iii) show the sketch of overtaking zone with location of sign post (hint: $a=0.99 \text{ m/sec}^2$)

Q.6 Find minimum sight distance to avoid head-on collision of two cars approaching at 90 kmph and 60 kmph. Given $t=2.5\text{sec}$, $f=0.7$ and brake efficiency of 50 percent in either case.

Q.7 Design the rate of super elevation for a horizontal curve of radius 450 m & speed 90Kmph.

Q.8 A valley curve is formed by a descending gradient of $\frac{1}{25}$ & an ascending gradient of $\frac{1}{30}$. Design the length of valley curve to fulfill both comfort condition & head light sight distance. Take design speed 80 Kmph & $f= 0.35$.

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ASSIGNMENT NO- 1

GEOTECHNICAL ENGINEERING

CIV403

DATE :- 18.03.2020

DATE OF SUBMISSION:- 15.04.2020

Q.1 Explain 3 phase system of the soil with neat sketch?

Q.2 Derive an expression between void ratio (e), degree of saturation (s), water content (w) and specific gravity (G)?

Q.3 Define all the Physical and Engineering properties of soil?

Q.4 Loose soil has a relative density within a range of:

- a) 60-85
- b) 85-100
- c) 10-35
- d) 35-60

Q.5 Derive the relation between void ratio & porosity?

Q.6 A saturated soil sample has dry unit weight (γ_d) of 18 KN/m^3 and a Specific gravity of 2.63. Find the water content of the soil, if $\gamma_w = 10 \text{ KN/m}^3$?

Q.7 Calculate the Void Ratio (e) for a dry soil, having specific gravity of 2.67 and dry unit weight (γ_d) as 18 KN/m^3 . Take $\gamma_w = 10 \text{ KN/m}^3$?

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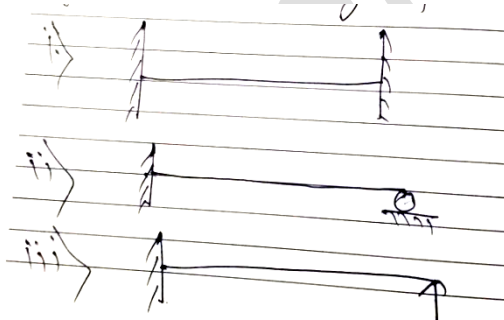
THEORY OF STRUCTURES

CIV405

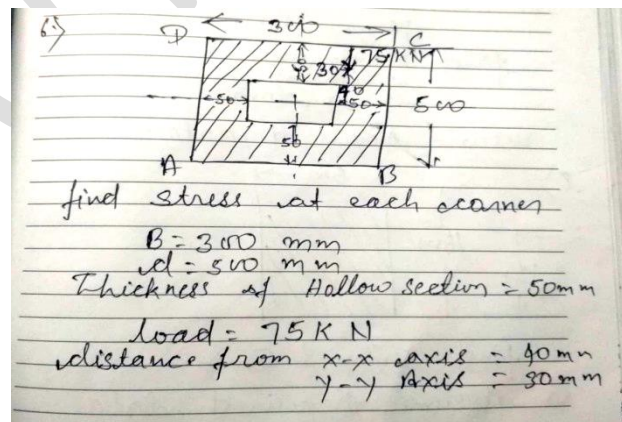
DATE :- 18.03.2020

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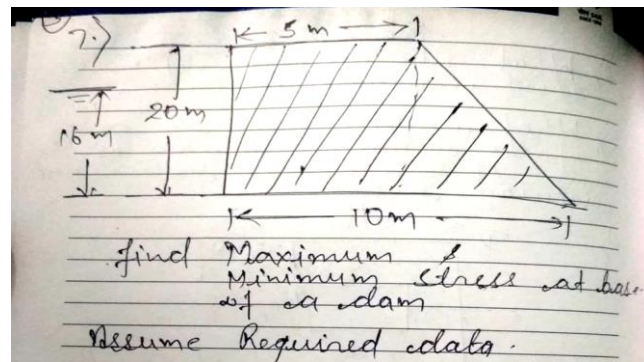
- 1). Write and remember all the formula of 1st, 2nd and 3rd chapter.
- 2) What do you mean by determinate and indeterminate structure explain with example.
- 3) What do you mean by equilibrium equation and support of beam find indeterminacy of



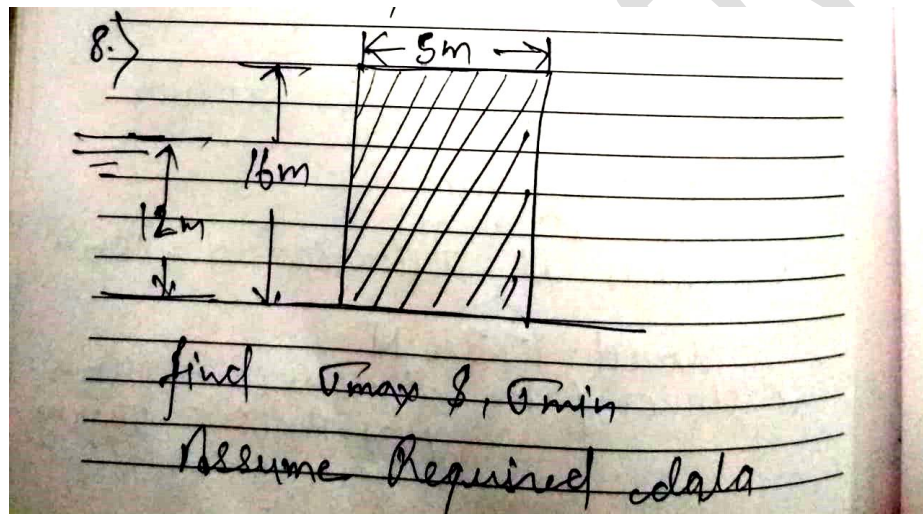
- 4) What do you mean by middle third and middle fourth rule?
- 5) What do you mean by core of the section of rectangular section and circular section?
- 6).



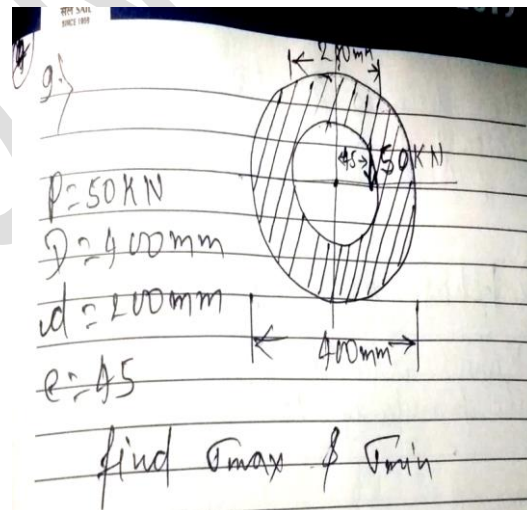
7).



8).



9).



10). A square chimney 24m high has an opening of 2m*2m inside the external dimension are 4m*4m the horizontal intensity of wind pressure is 1.5 kn/m² and the specific weight of masonry is 22kn/m³. Calculate the maximum and minimum stress intensities at the base of chimney.

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ASSIGNMENT NO- 1

CONSTRUCTION TECHNOLOGY

CIV402

DATE :- 18.03.2020

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- 1). Draw and explain different various parts of a building.
- 2). what Do you mean by load bearing structure, framed structure, and composite structure .
- 3). what do you Mean by Foundation explain its type subtype with diagram.
- 4). Explain masonry and Bond with diagram and types.
- 5). What is the site investigation done before any construction
