

Total No. of Questions – [3]

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V222-224(ESE)

May 2022 (ENDSEM) EXAM
S.Y. B. TECH. CIVIL (SEMESTER - II)
COURSE NAME: GEOTECHNICAL ENGINEERING
COURSE CODE: CVUA 22204
(PATTERN 2020)

Time: [1Hr]

[Max. Marks: 30]

(*) Instructions to candidates:

- 1) Figures to the right indicate full marks.
- 2) 'a' part of every question is compulsory
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

Q.1 a) The shear strength parameters of a given soil are, [4]
 $C=0.26 \text{ kg/cm}^2$ and $\phi=21^\circ$. Undrained triaxial tests are to
be carried out on specimens of this soil. Determine
deviator stress at which failure will occur if the cell
pressure be 2.5 kg/cm^2 .

b) Compare triaxial compression test and Direct shear [6]
test.

OR

b) A cylindrical specimen of a saturated soil fails under [6]
an axial stress of 150 kN/m^2 during an unconfined
compression test. The failure plane makes an angle of 52°
with the horizontal. Calculate cohesion and angle of
internal friction of the soil

Q2 a) State assumption in Rankine's earth pressure theory [4]
b) Explain Active, Passive Earth pressure with respect to [6]
wall movements with sketches.

OR

b) A wall 6 m high has a smooth vertical back and it [6]
retains a non-cohesive level back fill with $\gamma = 18 \text{ kN/m}^3$, ϕ

= 30° . Determine the total lateral earth pressure in active state.

Q.3

a) Illustrate modes of slope failures in soil

[4]

b) What are the different methods of ground improvement techniques

[6]

OR

b) List different types of soil reinforcement? Explain any one in detail

[6]