

University of Mumbai

Examination 2020

Program: BE Civil Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: CEC601 and Course Name: GEOTECHNICAL ENGINEERING-II

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	The factor of safety F_c with respect to cohesive strength is based on the assumption that _____
Option A:	Frictional force is fully mobilized
Option B:	Frictional force is zero
Option C:	Total cohesive resistance is zero
Option D:	Total cohesive resistance is unity
Q2.	If the cohesive force (c), is 1.5 t/m^2 , the density (γ) of the soil is 2.0 t/m^3 , factor of safety (F) is 1.5 and stability factor (S_n) is 0.05, the safe height of a slope, is
Option A:	5 m
Option B:	8 m
Option C:	10 m
Option D:	12 m
Q3.	Coulomb's theory of earth pressure is based on
Option A:	The theory of elasticity
Option B:	The theory of plasticity
Option C:	Empirical rules
Option D:	Wedge theory
Q4.	When movement of a wall under the earth pressure from the backfill was prevented the coefficient of earth pressure was recorded as 0.5. The ratio of coefficient of passive and active earth pressure of the backfill is
Option A:	$1/3$
Option B:	3
Option C:	$1/9$
Option D:	9
Q5.	If a uniform surcharge of 120 KN/m^2 is placed on the backfill with $\phi = 30^\circ$, the increase in pressure is
Option A:	12 KN/m^2
Option B:	30 KN/m^2
Option C:	40 KN/m^2

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Option D:	120 KN/m ²
Q6.	If the movement of failure wedge is downward then the pressure is acting on the soil is
Option A:	Active earth pressure
Option B:	Passive earth pressure
Option C:	Positive earth pressure
Option D:	Rest earth pressure
Q7.	A soil is said to be in plastic equilibrium if
Option A:	Pressure acting in the soil on every particle is same in similar direction
Option B:	Every point in the soil is on the verge of failure
Option C:	If pressure acting in the soil on a particle is similar in all direction
Option D:	Every point in the soil is on the wedge failure
Q8.	The minimum allowable factor of safety against sliding in the case of a Cantilever retaining wall is
Option A:	2
Option B:	3
Option C:	2.5
Option D:	1.5
Q9.	In the case of a counter fort retaining wall, the toe slab acts as a
Option A:	Cantilever
Option B:	Continuous Slab
Option C:	Simply Supported
Option D:	Over hanging
Q10.	The immediate settlement of a rigid footing is about _____ times the maximum settlement of an equal Flexible footing
Option A:	0.9
Option B:	0.7
Option C:	0.6
Option D:	0.8
Q11.	The bearing capacity of soil supporting a footing of size 3m x 3m will not be affected by the presence of water table located at a depth below the base of footing of
Option A:	1 m
Option B:	1.5 m
Option C:	3 m
Option D:	6 m
Q12.	For purely cohesive soil, the bearing capacity is given by which of the following equation?

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Option A:	$q_f = 5.7 c + \bar{\sigma}$
Option B:	$q_f = c + \bar{\sigma}$
Option C:	$q_f = 5.7 c$
Option D:	$q_f = c$
Q13.	If a soil has $\gamma = 20 \text{ kN/m}^3$ and $D_f = 1\text{m}$, $q_u = 200 \text{ kN/m}^2$, Find q_{nu} in kN/m^2
Option A:	180
Option B:	200
Option C:	220
Option D:	240
Q14.	Net ultimate bearing capacity of a footing embedded in a clay stratum
Option A:	is independent of depth and size of footing
Option B:	increases with depth of footing only
Option C:	increases with size of footing only
Option D:	increases with depth and size of footing
Q15.	The width of test pit for plate load test is made 'X' times width of plate 'X'
Option A:	5
Option B:	3
Option C:	2.5
Option D:	2
Q16.	IS code for LOAD TEST ON PILE is
Option A:	IS 2720 Part-1
Option B:	IS 4380 Part-5
Option C:	IS 2911 Part-4
Option D:	IS 383
Q17.	Dynamic formula does not indicate about _____
Option A:	Temporary change in soil structure and Future settlement
Option B:	Allowable load
Option C:	Coarse-grained soil
Option D:	Relationship between dynamic and static resistance of soil
Q18.	The separation of Q at any stage of loading into R_p and R_f in cyclic test is based on experimental value found out by _____
Option A:	Hailey
Option B:	A.F. Van Weele
Option C:	A.M. Wellington
Option D:	MacArthur
Q19.	Cast-in-situ piles may be classified in to _____ classes
Option A:	Three
Option B:	Eight

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Option C:	Two
Option D:	Four
Q20.	The magnitude and direction of relative movements between the interior and exterior prisms of the conduits are dependent upon the _____
Option A:	Settlement ratio
Option B:	Projection ratio
Option C:	Settlement of conduits
Option D:	Compressive strain
Q21.	The Struts is a compression member whose load carrying capacity depends upon _____
Option A:	Length
Option B:	Height
Option C:	Slenderness ratio
Option D:	Width
Q22.	It covers internal mechanism such as shear within the structure, arrangement and behaviour of the reinforced soil and victim,
Option A:	External Stability
Option B:	Internal Stability
Option C:	Slope Stability
Option D:	Supplemental Stability
Q23.	According to Central Road Research Institute, the most used type of geotextile in roadways is
Option A:	Non-woven
Option B:	Woven
Option C:	Polyspun
Option D:	Spunbond
Q24.	Geotextile related products with large rectangular apertures are called _____.
Option A:	Geo cell
Option B:	Geo grid
Option C:	Geo mat
Option D:	Geo foam
Q25.	Gross safe bearing capacity is calculated using which of the below formula
Option A:	$q_g = q_s + \gamma * D$
Option B:	$q_g = q_u + \gamma * D$
Option C:	$q_g = q_{ns} + \gamma * D$
Option D:	$q_g = q_{nu} + \gamma * D$