Program: BE Civil Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: CEC601 Course Name: Geotechnical Engineering-II

Time: 1hour Max. Marks: 50

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

Q1.	For a loose sand sample and a dense sand sample consolidated to the same effective stress
Option A:	ultimate strength is same and also peak strength is same
Option B:	ultimate strength is different but peak strength is same
Option C:	ultimate strength is same but peak strength of dense sand is greater than that of loose sand
Option D:	ultimate strength is same but peak strength is low
Q2.	Over consolidation of soil is caused due to
Option A:	Erosion of over burden
Option B:	melting of ice sheet after glaciations
Option C:	permanent rise of water table
Option D:	continuously loading over structure
Q3.	The shearing strength of a cohesion-less soil depends upon
Option A:	Dry density
Option B:	Rate of loading
Option C:	Confining pressure
Option D:	Nature of loading
Q4.	In a drained triaxial compression test , a saturated specimen of a cohesionless sand fails under a divatric stress of 3kgf/cm2 when the cell pressure is 1kgf/cm2 .The effective angle of shearing resistance of a sand about
Option A:	37^o
Option B:	45^o
Option C:	53^o
Option D:	20^o
Q5.	What will be the shearing resistance of a sample of clay in an unconfined compression test, falls under a load of 150 N? Take change of cross-section Af=2181.7 mm2.
Option A:	68.75 kN/m2
Option B:	34.38 kN/m2

Option C:	11.35 kN/m2
Option D:	0.6875 kN/m2
Q6.	Which of the following cannot be obtained by using un-drained test?
Option A:	Effective stress failure envelope
Option B:	Shear strength
Option C:	sensitivity
Option D:	shear failure
Q7.	Stability number Sn is defined as
Option A:	Sn =Cm / ϒH
Option B:	Sn =Cm / γ
Option C:	Sn =Cm / H
Option D:	Sn =Cm / Fc γH
Q8.	The mobilized shear strength is referred as
Option A:	Shear strength
Option B:	May shear stress
Option C:	Applied shear stress
Option D:	Min shear stress
Q9.	A long natural slope in an over consolidated clay c'=20 kN/m2 , ϕ'= 30° ,γsat= 20 kN/m3 is inclined at 10° to the horizontal . the water table is at the surface & seepage is parallel to the slope . if a plane slip had developed at a depth of 5m below the surface . Determine the factor of safety . assume γw=10 kN/m3
Option A:	1.96
Option B:	2.18
Option C:	1.85
Option D:	2.35
Q10.	For submerged slope , the stability number is computed using
Option A:	Dry unit weight
Option B:	Saturated unit weight
Option C:	Unit weight of soil
Option D:	Submerged unit weight
Q11.	In stability of slopes the stress system is assumed to two dimensional . the stresses in the third direction is taken as
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q12.	In sudden drawdown conduction , The total cohesion mobilized (c'm) is equal to
Option A:	Cm = C'm - Ca

Option B:	Ca= C’m- Cm
Option C:	C’m= Cm+ Ca
Option D:	C’m= Cm- Ca
Q13.	With the increase in cohesion in soil
Option A:	Decrease active pressure and increase passive resistance
Option B:	Decrease both active and passive resistance
Option C:	Increase active pressure and decrease passive resistance
Option D:	Increase both active and passive resistance
Q14.	A vertical cut is to be made in a soil mass having cohesion c, angle of internal friction ϕ , and unit weight γ . Considering Ka and Kp as the coefficients of active and passive earth pressures, respectively, the maximum depth of unsupported excavation is
Option A:	2c/(γ√Ka)
Option B:	4c/(γ√Ka)
Option C:	2c/(γ√Kp)
Option D:	4c/(γ√Kp)
Q15.	A verticall wall with smooth face is 7.2m high and retains soil with a uniform surcharge angle of 9°.If the angle of internal friction is 27°.Compute the coefficient of active earth pressure.
Option A:	0.392
Option B:	0.998
Option C:	2.488
Option D:	1.345
Q16.	The material retained by the retaining wall is called
Option A:	Back fill
Option B:	Surcharge
Option C:	Active Pressure
Option D:	Passive Pressure
Q17.	According to assumptions of Rankine's theory of earth pressure the back of the retaining wall is
Option A:	Plane and smooth
Option B:	Vertical and smooth
Option C:	Vertical and rough
Option D:	Plane and rough
Q18.	According to Terzaghi's theory, the ultimate bearing capacity at ground surface for a strip footing in purely cohesive soil is given as
Option A:	2.57 C
Option B:	5.14 C
Option C:	5.7 C
Option D:	6.2 C

Q19.	In the plate load test for determining the bearing capacity of soil, the size of square bearing plate should be
Option A:	less than 300 mm
Option B:	between 300 mm and 750 mm
Option C:	between 750 mm and 1 m
Option D:	greater than 1 m
Q20.	The maximum pressure which a soil can carry without shear failure is called
Option A:	Safe Bearing Capacity
Option B:	net safe bearing capacity
Option C:	net ultimate bearing capacity
Option D:	ultimate bearing capacity
Q21.	A shallow footing is provided in a sandy soil, it carries an inclined load. Its bearing capacity can be determined by
Option A:	Hansen's Theory
Option B:	Skempton's Method
Option C:	Terzaghi's Analysis
Option D:	Boussinesq's equation
Q22.	According to Rankine's equation, The bearing capacity of cohesion-less soil at the ground surface is
Option A:	unity
Option B:	zero
Option C:	less than unity
Option D:	greater than unity
Q23.	Precast concrete pile is driven with a 50kN Hammer having a free fall of 1m. if the penetration in the last below is 0.5cm, determine the load carrying capacity of the pile using engineering news record formula. F.S. is equal to 6
Option A:	274 kN
Option B:	280 kN
Option C:	264 kN
Option D:	250kN
Q24.	The bearing capacity of a single pile in clay is mainly due to _____
Option A:	Friction
Option B:	Shear strength of soil
Option C:	Allowable load
Option D:	Ultimate load
Q25.	Negative skin friction occurs when…..
Option A:	upward drag exists in the pile
Option B:	surrounding soil settles more than the Pile
Option C:	the pile passes continuously through a from soil

Option D:	the driving operation begins