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

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 [°]	
Option B:	45°	
Option C:	53°	
Option D:	20°	
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 / YH	
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° ,ysat= 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	
Oution A.	below the surface. Determine the factor of safety . assume yw=10 kN/m3	
Option A:	1.96	
Option B:	2.18	
Option C:	1.85	
Option D:	2.35	
010	For submondal and the stability works at a second stability of the second stab	
	For submerged slope , the stability number is computed using	
Option A:	Dry unit weight	
Option B:	Saturated unit weight	
Option C:		
Option D:	Submerged unit weight	
011		
Q11.	In stability of slopes the stress system is assumed to two dimensional . the	
	stresses in the third direction is taken as	
Option A:		
Option B:		
Option C:	2	
Option D:	3	
012		
Q12.	in sudden drawdown conduction , The total cohesion mobilized (c'm) is equal	

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/(үv/Ка)		
Option B:	4c/(үv/Ka)		
Option C:	2c/(үvКp)		
Option D:	4c/(γvKp)		
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
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