

University of Mumbai

Examination 2020

Program: BE Civil Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: CE-DLO6063 and Course Name: Ground Improvement Techniques

Time: 1 hour

Max. Marks: 50

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

Q1.	Among the following soil, which is better for construction
Option A:	Marshy and soft soils
Option B:	Waste Material
Option C:	Hardpan soil
Option D:	Expansive and shrinkage soils
Q2.	The effect of salinity in soil is
Option A:	Increase the moisture content and make soil dry and rough
Option B:	Decrease the unit weight of soil with increase in salinity
Option C:	Decrease undrained shear resistance of the soil
Option D:	Increase undrained shear resistance of the soil
Q3.	For open areas of water such as dam lining and canals, these are used as protection measures
Option A:	Geo grids
Option B:	Geo filters
Option C:	Geo membrane
Option D:	Geo synthetic
Q4.	Vibro-compaction or Vibroflotation is adopted for
Option A:	Construction on clayey soil
Option B:	Construction on granular fill
Option C:	Construction on dredged material
Option D:	Construction on organic silt
Q5.	Degree of consolidation both in vertical and radial drainage is given by
Option A:	$U = 1 - (1 - U_v)(1 - U_r)$
Option B:	$U = 1 - (1 - U_v) - (1 - U_r)$
Option C:	$U = 1 - (1 - U_v)(1 + U_r)$
Option D:	$U = 1 - (1 - U_v) + (1 - U_r)$
Q6.	Providing Vertical drains will
Option A:	Increase pore water in clay soil
Option B:	Accelerate consolidation settlement

University of Mumbai
Examination 2020

Option C:	Reduce the amount of deformation under a given load
Option D:	Reduce pre construction settlement
Q7.	Compaction by impact roller is not effective for
Option A:	Wet sand
Option B:	Dry sand
Option C:	Rubble fill
Option D:	Unsaturated clay
Q8.	Method adopted for shallow compactions
Option A:	Dynamic compaction
Option B:	Rolling and vibrating using rollers
Option C:	Compaction grouting
Option D:	Blast densification
Q9.	Mechanical Stabilisation requires
Option A:	Mixing of two or more types of natural soils
Option B:	Addition of chemicals to soils
Option C:	Addition of lime to soils
Option D:	Addition of cementing material to soils
Q10.	Basic purpose of Bituminous stabilization is
Option A:	Waterproofing and binding
Option B:	Reduce settlement of plastic clay
Option C:	Providing smooth surface
Option D:	Enhance drainage facility
Q11.	_____ material is used for chemical stabilisation of expansive soils.
Option A:	Calcium chloride or Gypsum
Option B:	Fly ash
Option C:	Polymers
Option D:	reinforcement
Q12.	In suspension grouting D ₁₅ indicating
Option A:	Particle size at which 15 % of the soil is finer
Option B:	Particle size at which 85 % of the grout is finer
Option C:	Particle size at which 15 % of the soil is coarser
Option D:	Particle size at which 85 % of the soil is coarser
Q13.	Compaction grouting is most effective in case of
Option A:	Clayey soil
Option B:	Silty soil
Option C:	Free draining granular soil and low sensitivity soil
Option D:	High sensitivity soil

University of Mumbai
Examination 2020

Q14.	For successful grouting of soils, Groutability ratio (GR) should be
Option A:	Greater than 20
Option B:	Less than 20
Option C:	Equal to 20
Option D:	Less than and equal to 20
Q15.	In Jet grouting, upper nozzle delivers
Option A:	Water
Option B:	Grout
Option C:	Air
Option D:	Both water and grout
Q16.	Stone column techniques ideally suitable for..... soil
Option A:	Gravelly soil
Option B:	All types of soils
Option C:	Soft clay and silt
Option D:	Sandy soil
Q17.	The equivalent circle has an effective diameter for equilateral triangular pattern
Option A:	1 S
Option B:	2 S
Option C:	1.05 S
Option D:	1.13 S
Q18.	For stone column having length greater than its critical length, it fails by
Option A:	Crushing
Option B:	Bulging
Option C:	General shear
Option D:	Mixed shear failure
Q19.	Stress concentration factor n, due to externally applied load σ , is defined as
Option A:	σ_s / σ_g
Option B:	σ_g / σ_s
Option C:	σ / σ_s
Option D:	σ / σ_g
Q20.	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

University of Mumbai
Examination 2020

Q21.	Interlocking joints in panels and counter balancing pull from the soil reinforcement in the case of reinforced earth wall reduces mainly
Option A:	Bending moment
Option B:	Shear force
Option C:	Torsion
Option D:	friction
Q22.	Reinforced earths basic function is
Option A:	To contain lateral soil pressure
Option B:	To improve drainage facility
Option C:	To compact soil
Option D:	To increase consolidation settlement
Q23.	Mononobe-Okabe method is limited to
Option A:	Dry cohesive backfill
Option B:	Backfill slopes (3H:1V or flatter)
Option C:	Coefficient of seismic active earth pressure more than or equal to 0.6
Option D:	Free draining backfill material with limited seismic active wedge
Q24.	Soil nailing method, that not provide corrosion protection to reinforcement is
Option A:	Drilling and grouted method
Option B:	Driven soil nailing method
Option C:	Self-drilling soil nailing method
Option D:	Jet grouted soil nailing method
Q25.	Active anchor is
Option A:	Tensioned by the structure itself applying load to it
Option B:	It does not prevent distortion of structure
Option C:	Pre-tensioned before it takes up the load
Option D:	Tensioned by applying load external load to it