## GBCS SCHEME

(5)	USN	1	17CV45
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Manager of the state of the sta		Fourth Semester B.E. Degree Examination, July/August 2022
Z.	A FIRST	AR	Basic Geotechnical Engineering
Was all	BANCI	ne e	Max. Marks: 100
		N	ote: Answer any FIVE full questions, choosing ONE full question from each module.
ice.			Module-1
pract	1	a. b.	With a neat sketch of phase system, explain the soil mass in three phases. (10 Marks) List the different systems for classification of soil for general engineering purposes. Explain
y blank pages. = 50, will be treated as malpractice.			the unified soil classification in detail. (10 Marks)
ted as			OR
s. e trea	2	a.	Briefly explain the procedure to determine the grain size distribution by pipette. (10 Marks)
compulsorily draw diagonal cross lines on the remaining blank pages, 1, appeal to evaluator and /or equations written eg, $42+8=50$ , will be		b.	Enlighten in detail the method for determination of field density and dry unit weight by sand
lank 50, w			replacement method. (10 Marks)
ng b -8=			Module-2
naining ,, 42+8	3	a.	Briefly explain the diffuse double layer theory with colloid repulsion and attraction.  (10 Marks)
ne rem en eg,		b.	List and explain with neat sketch the different clay structures. (10 Marks)
on tl writt			
ompulsorily draw diagonal cross lines on the appeal to evaluator and /or equations written	4	a.	OR  Define compaction. Explain the standard proctor test to define the relationship between soi
ross	7.5		water content and degree of dry density. (10 Marks)
onal c		b.	List and explain the factors affecting the compacted density of soil. (10 Marks)
diago r and			Module-3
lraw Iuato	5	a.	Enumerate the various factors affecting the permeability of soil. (10 Marks)
rily d o eva		b.	List the various methods to determine the coefficient of permeability of soil. Briefly explain any one in detail. (10 Marks)
oulso) eal to			any one in detail. (10 Marks)
comp , app	,		OR (10 Marks)
	0	a. h	Define flownets with its properties and applications in brief. (10 Marks)  Explain with neat sketch the Casagrande method to draw phreatic line in a dom with filter.
answ ntific		Too.	(10 Marks)
On completing your answers, Any revealing of identification		The same of	Module-4
ting ing o	7	a.	Briefly explain the laboratory test to determine coefficient of consolidation by
mple		b.	i) Square root of time fitting method ii) Logarithm of time fitting method (10 Marks) With assumptions, explain the Terzaghi's theory of one dimensional consolidation. (10 Marks)
On co		υ.	With assumptions, explain the relizagin's theory of one dimensional consolidation. (10 marks)
1. C	Nego,		OR
Important Note : 1.	8	a.	Explain the mechanism of consolidation process by means of the piston and spring analogy.  (10 Marks)
ant N		b.	Briefly explain the following in details:
прог			i) Coefficient of compressibility
П			ii) Coefficient of volume change iii) Normal consolidated soil and preconsolidated soils
			iv) Determination of pre-consolidated pressure. (10 Marks)

## Module-5

9 a. Explain the Mohr-Coulomb failure theory on soil. (10 Marks)

b. Explain how the effective stress principle is used to represent the failure envelop of soil sample. (10 Marks)

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10 a. List the laboratory methods to determine the shearing resistance of soil and explain any one in detail. (10 Marks)

b. What are the factors affecting the shear strength of soil? Explain them in detail. (10 Marks)