BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE **SEMESTER : VII**
BRANCH: CIVIL **SESSION : MO/19**

SUBJECT: CE7011 SOIL ENGINEERING

TIME: 3:00 HOURS **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	Enumerate any two effect contributing to secondary valence forces.	[2]
Q.1(b)	Differentiate between flocculent & dispersed structure.	[4]
Q.1(c)	The structure of Montmorillonite & Illite are similar but their behavior is different – Justify.	[6]
Q.2(a)	Explain the electro-osmosis method of dewatering in soils.	[6]
Q.2(b)	Write a note on protective filters.	[6]
Q.3(a)	Draw the Mohr stress circles for un-drained test on saturated cohesive soil.	[2]
Q.3(b)	Discuss the elastic-plastic behavior of clay in isotropic compression & swelling.	[4]
Q.3(c)	Elaborate on yielding, hardening & plastic flow.	[6]
Q.4(a)	Establish the development of the Roscoe surface.	[6]
Q.4(b)	Derive $q' = (M - h)\exp((\Gamma - v)/\lambda) + hp'$, symbols having their standard significance.	[6]
Q.5(a)	With aid of figures, illustrate the common types of sheet piling structures.	[2]
Q.5(b)	Differentiate between fill bulkhead & dredged bulkhead.	[4]
Q.5(c)	Enumerate & state the significance of the assumptions made in the design of anchored bulkhead in granular soil (with variation of properties along the depth) by free earth support method.	[6]
Q.6(a)	Differentiate between a positive projecting conduit & negative projecting conduit.	[2]
Q.6(b)	Write a note on arching in soils.	[4]
Q.6(c)	Explain stress distribution in the vicinity of shafts.	[6]
Q.7(a)	Draw a figure to show the mechanisms of soil – root - leachate interaction at landfill area.	[2]
Q.7(b)	Write a note on arid lands & desert, wetlands & coastal margins in the context of environmental geotechnical problems.	[4]
Q.7(c)	Discuss fly ash management.	[6]

::::::29/11/2019::::::E