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

CLASS: BE **SEMESTER: VI**
BRANCH: CIVIL **SESSION: SP/19**

SUBJECT: CE6007 GEO-TECHNICAL ENGINEERING -II

TIME: 3 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)	Discuss Purpose of site investigation.	[3]
Q.1(b)	Explain in brief the functioning of Vane shear.	[4]
Q.1(c)	Write brief details of Standard Penetration test.	[5]
Q.2(a)	A concentrated load of 200kN act at the foundation level at the depth of 2m below ground surface Find the vertical stress along the axis of the load at the depth of 10m and at the radial distance of 5m at the same depth by (a) Boussinesq and (b) Westergaard formula.	[6]
Q.2(b)	Give details of determining vertical stress by Newmark's influence chart.	[6]
Q.3(a)	A square footing 2.5m by 2.5m is built in a homogeneous bed of sand of unit weight 20 kN/m^3 and having an angle of shearing resistance of 36^0 The depth of the base of the footing is 1.5m below the ground surface. Calculate the safe load that can be carried by a footing with a factor of safety of 3 against complete shear failure. Use Terzaghi's analysis.	[6]
Q.3(b)	Discuss general shear failure, Local shear failure and Punching shear failure.	[6]
Q.4(a)	Discuss different types of shallow foundation with diagram.	[6]
Q.4(b)	Discuss the criteria for location and depth of foundation.	[6]
Q.5(a)	What are the functions of Pile foundation?	[2]
Q.5(b)	Discuss in brief Cast in situ concrete piles.	[4]
Q.5(c)	Give utility and stages in construction of under-reamed piles.	[6]
Q.6(a)	What are the types of machine foundation?	[4]
Q.6(b)	Define Amplitude, Period, Frequency, Resonance.	[4]
Q.6(c)	What are the design criteria for machine foundation?	[4]
Q.7(a)	Discuss Open cassion, Box cassion and Pneumatic cassion.	[6]
Q.7(b)	Describe various components of well foundation.	[6]

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