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| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY** |
| **Scheme for Valuation** **S5 SUPPLEMENTARY B.TECH JULY 2019** |
| **CE363** |
| **GEOTECHNICAL INVESTIGATIONS** |
| 1 | a | Importance of soil exploration – 4 marks |
| b | Plotting pressure-settlement curve – 3 marksIdentify failure stress – 1 markproportioning the size of footing – 3 marks |
| c | 4 steps – 4 marks each |
| 2 | a | Sketch of rotary drilling – 1 markExplanation – 3 markapplication – 1 mark |
| b | Plate load test at the level of water table. Identify this – 2 markProcedure for the test – 3 mark |
| c | Isolated Spread Footing (1.5 x B) – 1 marksPile foundations (1.5 width of str. from bearing level) – 1 markRoad cuts (bottom width of cut) – 1 markWell foundations (1.5 width of str. from bearing level) – 1 markEmbankments(2m below G.L or width whichever greater) – 1 mark |
| 3 | a | 1. ind. complex – geological terrain decides no. of bores. CPT at every 50m - 2 mark
2. compact building – one each at 4 corner, one at center – 2 mark
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| b | Any 5 objectives – 5 marks |
| c | 6 limitations of Plate Load Test – 6 marks |
| 4 | a | Identifying the condition and equation – 2 marksFinal answer – 3 marks |
| b | Application of test – 2 marksprocedure for the same in fine grained soil – 3 marks |
| c | Importance of correcting N value for Dilatancy – 5 marks |
| 5 | a | Identification of SCPT – 2 marksProcedure to get skin and end resistance – 3 marks |
| b | identification of test – 1 markProcedure – 2 marksUsage in area with buried conduits explanation – 1 mark |
| c | 1. Resistivity profiling *(explain)* – 3 marks
2. Resistivity sounding *(explain)* – 3 marks
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| 6 | a | advantages and disadvantages – 4 marks |
| b | Plotting the values – 3 marksComputing the velocity in layers – 3 marksComputing the thickness of layers – 2 marks |
| c | advantages and disadvantages – 3 marks |
| 7 | a | Criteria for undisturbed samplers – 6 marks |
| b | differentiate between undisturbed and disturbed sampling any 3 points – 2 marks each 6 marks |
| c | Procedure for estimation of safe load for single piles <600 mm dia – 3 marksSingle piles >600 mm dia 3 marksProcedure for estimation of safe load in the case of group of piles - 2 |
| 8 | a | Factors that cause sampling disturbance – any three factors -3 marks3 remedies for the same – 3 marks |
| b | Plotting the load settlement and elastic load settlement data – 5 marksEstimation of allowable load – 3 marks |
| c | Borelog sketch – 3 marks Explanation of report – 3 marks |
| 9 | a | Explanation for representative soil samples -2 marksAny procedure – 4 marks |
| b | Any 4 precautions – 4 marksImportance of precautions – 2 marks |
| c | Explanation of the procedure – 8 marks |