

M.E. CIVIL ENGINEERING 1ST YEAR 1ST SEMESTER EXAM 2018
 (~~1st/2nd Semester/Repeat/Supplementary/Spl. Supplementary/Old/Annual/Bi-Annual~~)

SUBJECT: SUBSOIL INVESTIGATION

(Name in full)

PAPER XXXX

Time: ~~Two hours/~~ Three hours/~~Four hours/~~ Six hours

Full Marks 100

(50 marks for each part)

Use a separate Answer Script for each part

- | No. of Question | <ul style="list-style-type: none"> • <i>Maintain neatness.</i> • <i>Assume reasonable data if it is not supplied.</i> • <i>Answer all questions</i> • <i>All drawings-must be drawn by pencil</i> • <i>No code etc. will be needed to answer the questions of this part</i> | Marks | | |
|--------------------|--|---|-----------------------|-------------------------|
| (1) | <p>(a) Write short notes on followings:</p> <p>(i) Objectives of sub soil exploration,</p> <p>(ii) Semi-direct and indirect methods of exploration,</p> <p>(iii) Advantages of wash boring,</p> <p>(iv) DCPT,</p> <p>(v) Mode of operation of "shell & auger" method,</p> <p>(vi) Core Drilling,</p> <p>(vii) Shot drilling,</p> <p>(viii) Representative & non representative samples,</p> <p>(ix) Limitations of soundings,</p> <p>(x) Areas where Soundings & probing are used extensively.</p> <p>(b) Give a general guiding table in relation with depth of exploration at the start of work, having the following columns in it:</p> <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 80%;"> <tr> <td style="padding: 2px;">Type of foundation</td> <td style="padding: 2px;">Depth of Exploration.</td> </tr> </table> | Type of foundation | Depth of Exploration. | <p>10x2=20</p> <p>5</p> |
| Type of foundation | Depth of Exploration. | | | |
| (2) | <p>(a) Name the different types of samplers. Discuss on standard split spoon sampler.</p> <p>(b) What should be the responsibilities of designer to ensure the proper execution of sub soil exploration?</p> <p>(c) Discuss about the information required from sub soil exploration.</p> <p>(d) What information should a good soil test report contain?</p> | <p>2+3=5</p> <p>6</p> <p>7</p> <p>7</p> | | |
| (3) | <p>(a) Discuss the Seismic Refraction Method in detail.</p> <p>(b) With the help of a chart or 'tree structure', show the test/s or process/es, by which prior investigations for suitable foundations can be executed.</p> <p style="text-align: center;">Or</p> <p>Show the current conventional methods of sub soil exploration, through a chart or 'tree structure'.</p> | <p>15</p> <p>10</p> | | |
| (4) | <p>(a) Name the phases of the four phased sequence of the subsoil investigation for a mega project.</p> <p>(b) Discuss in detail about each phase out of the four phases of the subsoil investigation for such a mega project.</p> <p>(c) What precautions should be taken during SPT test?</p> | <p>4</p> <p>(4x4)=16</p> <p>5</p> | | |