BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY
Question Bank (K-Scheme)

Name of Subject: Geotechnical Engineering
Unit Test : II
Subject code: 314315
Course : CE
Semester: IV

Unit test II

Unit 3: Permeability and Shear Strength of Soil
2 Marks Questions:

a. State the components of shearing resistance of soil.

b. Define: Cohesion and internal friction.

c. State the field situations of shear failure of soil.

d. Define purely cohesive soil and draw its shear failure envelope.

e. State the tests carried out to determine shear strength of soil.

4 Marks Questions

a. Explain Mohr-Coulomb's theory to determine the shear strength of soil.

b. Explain with figure laboratory determination of shear strength of soil with direct shear test.

c. Draw shear strength envelope for purely cohesive and cohesionless soil with sketch.

d. Differentiate between cohesionless soil and purely cohesive soil.

e. State the limitations of Mohr-Coulomb equation.

Unit 4: Compaction and Stabilisation of soil
2 Marks Questions:

a. Give the necessity of soil compaction.

b. State two field situations where soil compaction is necessary.

c. Define Optimum Moisture Content and Maximum Dry Density of soil.

d. Enlist any two methods of soil stabilization.

e. State the significance of C.B.R. test on soil.

4 Marks Questions:

a. Differentiate between compaction and consolidation with four points.

b. Explain standard proctor test to determine MDD and OMC of soil.

c. State field methods of compaction. Explain suitability of various compaction equipment.

d. Name four compaction equipment along with their suitability.

e. State the methods of soil stabilization. Explain any one.

Unit 4: Site Investigation and Bearing Capacity of Soil
2 Marks Questions:

a. State the necessity of soil investigation.

b. Define: bearing capacity and safe bearing capacity.

c. State the relationship between safe bearing capacity and ultimate bearing capacity.

d. State the types of shear failure of soil.

e. Enlist field methods of determining bearing capacity of soil.

f. Define active earth pressure with sketch.

4 Marks Questions:

a. State any four assumptions made in Terzaghi's analysis of bearing capacity of soil.

b. Explain the effect of water table on bearing capacity of soil.

c. Define with sketches active earth pressure and passive earth pressure.

d. Differentiate between active and passive earth pressure.

e. Draw a neat labeled sketch of plate load test set up for determination of field bearing capacity.

f. State field identification tests on soil and explain any one.

g. Calculate active earth pressure and passive earth pressure at depth of 9 m in dry cohesionless soil with an angle of internal friction of 30° and unit weight of 17 kN/m3.