B. Tech.
(SEM. II) EXAMINATION. 2006-07
SOIL SCIENCE

Time : 2 Hours] [Total Marks : 50

Note : Answer all questions. All questions carry equal marks.

1. Attempt any four of the following : 3.5×4
   (a) Explain primary, secondary and accessory minerals with examples.
   (b) What is sedimentary rock? Describe with example arenaceous and argillaceous rocks.
   (c) Give role of hydrolysis and carbonation in weathering of rocks.
   (d) State the role of parent material in the characterization of soils.
   (e) Describe about different ‘BASE MAPS’.
   (f) What are specific processes of soil formation? Describe alkalization and less wage.

2. Attempt any four of the following : 3.5×4
   (a) Describe briefly the movement of water vapour in soil.
   (b) How does stokes’ Law govern the determination of soil particles in soil?

V–8016] 1 [Contd...
(c) Differentiate between bulk density and particle density. How the particle density of a soil is determined.
(d) Explain the effect of adsorbed cations on aggregation of particles.
(e) Write the factors which affect composition of soil air.
(f) State how soil temperature affects plant growth and bio-chemical activities.

3. Attempt any \textbf{two} of the following: \hspace{1cm} 6\times 2
   
   (a) Give the factors responsible for creating acidity in soil. Discuss briefly the phosphate fixation in acid soils.
   
   (b) What are different types of soil colloids? Give the role of soil colloids in soil fertility.
   
   (c) Differentiate between active and reserve acidity. Discuss how urea application leads to creation of acidity in soil.
   
   (d) Compare the properties of montmorillonite, illite and raolinite.

4. Attempt any \textbf{two} of the followings: \hspace{1cm} 6\times 2
   
   (a) Explain how band and broadcast application complement each other in encouraging efficient crop production.
   
   (b) Discuss briefly the reclamation of alkali soils.
   
   (c) Explain C : N ratio. Discuss the importance of C : N ratio in the availability of nitrogen in soil.
   
   (d) Classify phosphatic fertilizers and give the reaction of phosphatic fertilizer in soils.