

**KERALA AGRICULTURAL UNIVERSITY**  
**B.Sc (Hons.) Agriculture Programme – 2011 Admission**  
**I<sup>st</sup> Semester Final Examination – February / March 2012**

**Title : Ssac 1101**

**Marks : 80**

**Course : Introduction to Soil Science (2+1)**

**Time : 3 Hours**

**I. Fill up the blanks / Match the following / State True or False / Define (1 x 10= 10)**

1. A branch of science that deals with various properties of soil in relation to crop production is called\_\_\_\_\_.
2. Sedimentary rocks are otherwise called as stratified Rocks. (T/F)
3. The average % of mineral matter in soil is \_\_\_\_\_
4. The fully expanding 2:1 type of clay mineral is\_\_\_\_\_.
5. The most abundant element in earth's crust is Oxygen. (T/F)
6. The soil structure which is desirable for cultivation is platy. (T/F)
7. Define Bulk density.
8. Give Hilgard's definition of soil.
9. Define ODR
10. Plasticity number is the difference between liquid limit and upper plastic limit. (T/F)

**II. Write short notes/answers etc on Any TEN (10 x 3 =30)**

1. How will you measure soil temperature?
2. Write Short note on C:N ratio.
3. Differentiate Apparent density and true density.
4. Mention the significance of soil colour.
5. Draw a hypothetical soil profile.
6. Give the soil - water - energy concept
7. Describe briefly the beneficial roles of soil organisms.

8. Mention the assumptions of Stoke's law.

9. Write Short note on Kaolinite.

10. Explain ion exchange and nutrient availability.

11. Briefly explain soil crusting.

12. Differentiate infiltration and percolation.

**III. Write short essays on Any SIX of the following (6 x 5 = 30)**

1. Give the importance of soil aeration.

2. Explain the physical classification of soil water.

3. Describe the formation and properties of humus.

4. State Stokes law. What are the assumptions and limitations in applying this for the particle analysis of the soil.

5. Explain about the different methods of estimation of soil moisture content.

6. Organic matter is the key to soil fertility. Discuss.

7. Explain the factors affecting soil structure

8. Answer the following

(i) Podzolisation & laterisation.

(ii) Mechanism of gaseous exchange in soil air.

(iii) Ammendment for acidic soil.

**IV. Write essays on Any ONE (1 x 10 = 10)**

1. Name the dominant clay minerals of major soils of Kerala. Compare and contrast their unique properties.

2. What is weathering? Explain the various weathering process.