

B.Sc.(Ag.) Honours Semester– I Examination, 2014
Course No. : SSC –111 (Introduction to Soil Science)
(New Syllabus)

Signature of Centre Superintendent

Roll No.: (in figure) _____	(in words) _____
Student Index No. _____	Regn. No. _____ of _____

Time : Two hours

Full marks : 40

Questions are of value as indicated in the margin

Part-I

(Objective and Short Answer Type)
(Use only ball point pen)

Time : 20 minutes

Full marks : 10

- Note:** 1. Answer in question paper itself.
 2. Striking, rewriting and overwriting are not allowed in the objective type questions.

1. Write whether the following statements are True (T) or False (F): 8×0.5=4

- a) Montmorillonite is a nonexpanding clay mineral.
- b) CEC is expressed as Cmol (P⁺)/kg.
- c) Histic epipedon is a mineral surface horizon.
- d) Soil rich in organic matter have high porosity.
- e) Carbon dioxide content of soil air is more than that of atmospheric air.
- f) Mulch has a tendency to increase soil temperature fluctuation.
- g) Pore space increases with decrease in bulk density of soil.
- h) The science which deals with rock is known as pedology.

2. Fill in the blanks: 8×0.5=4

- a) Surface area of kaolinite is _____ than montmorillonite.
- b) _____ is an amorphous clay.
- c) A subsurface horizon having EC > 4 dSm⁻¹ is known as _____.
- d) Generally _____ colour chart is used for determination of soil colour.
- e) Compaction increases _____ density of soil.
- f) The most abundant mineral in earth crust is _____.
- g) Slate is a metamorphic rock obtained from _____.
- h) Limestone is used for reclamation of _____ soil.

3. Tick (✓) the correct answer: 4×0.5=2

- a) Octahedral layer containing Mg is known as (a) Gibbsite layer (b) Brucite layer (c) Granite layer (d) none of these.
- b) The most fertile soil of the world is under the soil order (a) Ultisol (b) Oxisol (c) Gelisol (d) Mollisol
- c) The logarithm of the negative pressure head in centimetre of water column height is known as (a) pH (b) Eh (c) pF (d) ET
- d) Occurrence of quartz in high amounts makes a rock (a) alkaline (b) acidic (c) hard (d) soft

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Part-II

(Descriptive Type)

Time : 100 Minutes

Full marks : 30

Questions are of value as indicated in the margin.

Answer **any four** questions from the following.

4. Draw and describe the structure of kaolinite. Why is it non expanding? 5+2.5=7.5
 5. Define soil structure. Briefly describe different grades of soil structure. What are the factors affecting porosity of soil? How soil compaction can be controlled? 1+2+3+1.5=7.5
 6. Briefly discuss the various factors affecting soil temperature. What are the effects of soil aeration on soil fertility and plant growth? Briefly mention the different soil moisture constants. 3+2+2.5=7.5
 7. What do you mean by weathering of rocks and minerals? Discuss briefly the process of chemical weathering of rocks and minerals. 1+6.5=7.5
 8. Neatly sketch a typical soil profile and discuss briefly the master horizons. What do you mean by Soil Taxonomy? Write down the structure of Soil Taxonomy. 4.5+1+2=7.5
 9. Write differences between the following (**any three**) 2.5×3=7.5
 - a) Bulk density and particle density
 - b) Light soil and heavy soil
 - c) Pedology and edaphology
 - d) Soil compaction and soil consolidation
 - e) Soil and solum
 - f) Primary minerals and secondary minerals
 10. Write short note on (**any three**) 2.5×3=7.5
 - a) Soil crusting
 - b) Stability of soil aggregates
 - c) Soil consistency
 - d) Metamorphic rocks
 - e) Earth crust
 - f) Physical classification of soil water
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