

B.Sc.(Ag.) Honours Semester– I Examination, 2014

Course No. : SSC –111 (Fundamental of Soil Science-I)

(Old Syllabus)

Signature of Centre Superintendent

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

Time : Two hours

Full marks : 50

Questions are of value as indicated in the margin

Part-I

(Objective and Short Answer Type)

(Use only ball point pen)

Time : 30 minutes

Full marks : 20

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

1. Write True (T) or False (F) against the following statements (any four):

1×4=4

- i) CO₂ concentration of soil air is less than the atmospheric air. ☐
- ii) Hue, value and chroma are the component of soil air. ☐
- iii) Lower is the pH value, higher would be the active H⁺ concentration. ☐
- iv) Salinity of soil is due to the presence of excess neutral soluble salts in soils. ☐
- v) The pH of 0.1 N HCl is 1.0. ☐
- vi) The water holding capacity of sandy soil is more than a loam soil. ☐
- vii) The water held between field capacity and permanent wilting point is available to plants. ☐

2. Fill up the blanks with most appropriate words (any three):

1×3=3

- i) The value of Bulk density of mineral soil is always _____ than Particle density.
- ii) The most abundant mineral in the earth's crust is _____.
- iii) Granite and Basalts are _____ type of rocks.
- iv) The upper and most weathered part of soil profile (A and B-horizons) is called _____.
- v) Kaolinite is a _____ type of clay mineral.

3. Encircle the correct answer among the alternatives provided (any three):

1×3=3

- i) Gneiss and marble are metamorphic / sedimentary / igneous rocks.
- ii) The most resistant mineral present in the soils are mica / hornblende / quartz.
- iii) Soil air and water comprises 50% / 75% / 90% of the total volume of soil.
- iv) The most resistant mineral present in soils are mica / hornblende / quartz.
- v) The origin, composition, distribution and structure of rocks is dealt under petrology / edaphology / pedology.

4. Write short notes on the following (*any five*):

2×5=10

- i) Properties of loamy soil
- ii) Effect of mulching on soil temperature
- iii) Soil colour
- iv) Soil fertility and productivity
- v) Soil air and atmospheric air
- vi) Primary minerals
- vii) Relationship between porosity and densities of soil

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Part–II

(Descriptive Type)

Time : 1.5 Hours

Full marks : 30

Questions are of value as indicated in the margin.

Answer *any three* questions .

5. What do you mean by weathering? Differentiate between physical and chemical weathering. Describe physical weathering processes with examples. Mention the factors which affect weathering of rocks and minerals. 1+1.5+6+1.5=10
6. (a) Describe the different soil moisture constants.
(b) Define soil texture. Discuss briefly the different soil structural type. 5+(1+4)=10
7. (a) Define pH. How does soil acidity affect plant growth?
(b) Discuss the factors influencing available water content in soil. (1+5)+4=10
8. Describe fundamental processes of soil formation. Define soil profile and describe a hypothetical soil profile with sketch. Mention the passive and active soil forming factors. 3.5+1+3+2.5=10
9. Define soil and justify how soil has been conceived as a natural body. What are the components of soil and show the volume composition diagrammatically? Mention the phases that a soil system may have. Differentiate between soil and regolith with a diagram. (2+1)+3+4=10
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