



FIJI NATIONAL UNIVERSITY
 COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY
 School of Agricultural Sciences
 Department of Soil Science & Agril. Engineering

Bachelor of Science in Agriculture IIIrd year: Trimester IInd

FINAL EXAMINATION – 2017

SAC 702: SOIL SURVEY AND LAND USE INTERPRETATION

Time Allowed: 3.10 hours

Total Marks: 100

INSTRUCTIONS:

This paper consists of five (5) pages. Please check to see that your paper is complete.

Answer all questions in the answer booklet.

- Number your answers correctly in the provided answer booklet.
- Write your student ID number on all pages that you use including any additional sheet paper.
- Printed or written study materials are not allowed into the examination hall.
- Mark values appear at the end of each question or part thereof.
- Calculators are permitted.

“MOBILE PHONES ARE STRICTLY NOT ALLOWED”

SECTION NO.	TYPE	TOTAL MARKS
I	TRUE OR FALSE	15
II	MULTIPLE CHOICE	24
III	FILL IN BLANK	15
IV	DEFINE / EXPLAIN	10
V	SHORT ANSWER	36
TOTAL MARKS		100

PART I: STATE TRUE OR FALSE

10 x 1.5 = Total 15 marks

1. Sand materials transported by wind are called as Aeolian.
2. Symbol 'e' in subordinate distinctions of master horizons denotes highly decomposed organic matter.
3. In soil colour indication (2.5 YR4 /2, D), 2.5 YR denotes Hue.
4. Vertisols are heavy clay soils containing swelling and shrinking montmorillonite or smectite type of clay.
5. Soil classification based on the climate was given by Vilenski.
6. Percent of base saturation in mollic epipedon is more than 50 percent.
7. Entisols are young soils recently developed and their main characteristic is the lack of any diagnostic.
8. The natric horizon is similar to the argillic horizon and has an exchangeable sodium percentage of 15 percent or more.
9. There are total eight numbers of classes in the land capability classification.
10. Class - II in the land capability classification is represented by yellow colour.

PART II : WRITE THE LETTER OF YOUR CHOICE

16 x 1.5 = Total 24 marks

1. A prefix 'iso' is used with the soil temperature regimes when the difference between mean winter and mean summer is ?
 - a. Less than 10 ° C
 - b. Less than 5 ° C
 - c. More than 10 ° C
 - d. More than 5 ° C
2. Master horizons are?
 - a. O & A
 - b. O, A, B & C
 - c. A, B & C
 - d. None of the above
3. B horizons is a?
 - a. Illuvial horizon
 - b. Eluvial horizon
 - c. Organic horizon
 - d. Bed rock

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4. Leaching of soluble salts from soil either by irrigation water or rain water is called as?
 - a. Alkalization
 - b. Salinization
 - c. Desalinization
 - d. Solodization
 5. Five stages of soil development were given by?
 - a. Jenny
 - b. Myers
 - c. Hilgard
 - d. None of the above
 6. Weathering product of rocks and rock minerals are called as?
 - a. Pedon
 - b. Parent material
 - c. Solum
 - d. Polypedon
 7. Materials transported by the action of gravity are called as?
 - a. Alluvium
 - b. Lacustrine
 - c. Glacial drift
 - d. Colluvium
 8. Silt material transported by wind are called as
 - a. Delta
 - b. Meander
 - c. Loess
 - d. Aeolian
 9. Diagnostic soil horizons characterized by the status of organic matter
 - a. Ochric
 - b. Mollic
 - c. Anthropic
 - d. Oxic
 10. Age of soil was described by ?
 - a. Myers
 - b. Mohr & Von Baren
 - c. Jenny
 - d. Hilgard
 11. Soil forming factor that has no relevance after soil reaches its maturity is?
 - a. Time
 - b. Topography
 - c. Climate
 - d. All
 12. Which one is not a soil forming processes of arid and semiarid regions?
 - a. Calcification
 - b. Acidification
 - c. Salinization & Alkalization
 - d. All of the above
 13. Immobilization and accumulation of materials from the upper horizons at a depth beneath the soil surface is called as ?
 - a. Illuviation
 - b. Eluviation
 - c. Laterization
 - d. Podzolization

14. Which is the fundamental soil forming processes?
- | | |
|------------------|------------------|
| a. Laterization | b. Podzolization |
| c. Gypsification | d. Humification |
15. Decalcification leads to the formation of?
- | | |
|-------------------|-------------------|
| a. Calcic horizon | b. Gypsic horizon |
| c. Salic horizon | d. Both a & b |
16. Process of removal of silica and accumulation of sesquioxides is called as?
- | | |
|--------------------|------------------|
| a. Laterization | b. Podzolization |
| c. Decalcification | d. Calcification |

PART III: FILL THE BLANK SPACE WITH PROPER WORD

10 x 1.5 = Total 15 marks

1. Formative element for the soil order vertisol is.....?
2. Soil temperature regime that has mean annual temperature higher than 0 ° C but lower than 8 ° C is called as
3., a soil order which is dominantly organic in nature.
4. Map scaleis used in reconnaissance soil survey.
5. Size of the clay fraction is less than mm.
6. horizon, contains at least 2 percent soluble salt in upper 15 cm of soil.
7. What is the total number of soil order in soil taxonomy.....
8. Among all the soil forming factors, is the most influential factor in soil development.
9. What is the approximate proportion of organic matter in surface soil.....?
10. Podzolization is the negative of

SECTION IV: DEFINE / EXPLAIN THE FOLLOWING*5 x 2.0 = Total 10.0 marks*

- 1) Soil horizon
- 2) Illuviation
- 3) Calcification
- 4) Transitional horizon
- 5) Munsel's soil colour chart

SECTION V*3 X12 = 36 marks***WRITE THE ANSWER FOR GIVEN QUESTIONS (ANY THREE)**

1. Demonstrate any 8 (eight) sub ordinate distinction of master horizon with their main features.
2. What do you understand with soil survey? Compare the reconnaissance, semi-detailed and detailed soil survey, and briefly describe the land capability sub classes.
3. Provide important characteristics of soil taxonomy? Briefly demonstrate the characteristics of any 3 epipedons and any 3 endopedons.
4. Demonstrate the important categories of the soil taxonomy? Write the name of all soil orders as per soil taxonomy and explain the important characteristics with their formative elements {any 6 (six) soil orders}.

END OF EXAMINATION PAPER