



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
School of Agricultural Sciences and Forestry
Department of Soil Science & Agril. Engineering
FINAL EXAMINATION: 2018
Bachelor of Science in Agriculture IInd year: Trimester Ist
SOIL AND WATER CONSERVATION: SAC 601

Total marks: 100

Time allowed: 3 Hours and 10 mins allowed for reading at the beginning of exam.

INSTRUCTIONS:

This paper consists of four (4) 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	12
II	MULTIPLE CHOICE	12
III	FILL IN BLANK	12
IV	DEFINE	4
V	SHORT ANSWER	60
TOTAL MARKS		100

PART I: STATE TRUE OR FALSE

8 x 1.5 = Total 12 marks

1. Coarse textured soils are more susceptible to water erosion.
2. Alkali soils generally possess high amount of sodium salts.
3. One of the functions of a wetland is to recharge ground water sources.
4. LCC (Land Capability Classification) - I is denoted by dark green colour.
5. Safe limit for residual sodium carbonate of irrigation water is 10 m.eq./litre.
6. Infiltration rate of sandy loam soils is always higher than sandy soils.
7. The water held between -1/3 and -15 bar is called available water.
8. Soil moisture held in soil against gravity may be called as water quality.

PART II: WRITE THE LETTER OF YOUR CHOICE

8 x 1.5 = Total 12 marks

1. Long term soil erosion results in.....
A Persistent & large gullies
B Exposure of light colour subsoil
C Poorer plant growth
D All of the above
2. Which one is the most visible type of soil erosion among given?
A Gully erosion
B Wind erosion
C Splash erosion
D All of the above
3. What is the water potential at permanent wilting point (PWP) in soil?
A -15 bars
B 0 bars
C -31 bars
D -1 bars
4. Which one can be used to reduce the soil erosion?
A Mulch
B Gravel
C Residues from previous crop
D All of the above
5. In Universal soil loss equation, $A = RKLSCP$, where P denotes?
A Soil erodibility
B Predicted soil loss
C Soil conservation practices
D Rainfall factor

SECTION V: WRITE THE ANSWER FOR GIVEN QUESTIONS

5 X 12 = 60 marks

- 1 A) What is soil pH? 2.0
B) Briefly explain the types of soils categorised based on soil pH. 4.0
C) Discuss the factors responsible for soil acidity and how to manage soil acidity. 6.0
- 2 A) Briefly explain the classes of EC, SAR and boron in irrigation water? 6.0
B) Describe the management practices for using poor quality water. 6.0
- 3 A) Demonstrate the major forms of water erosion. 4.0
B) List down the factors affecting water erosion and explain any one of those factor in brief. 4.0
C) Compare the agronomical measures of soil conservation. 4.0
- 4 A) What do you understand with watershed? Briefly explain. 3.0
B) What are the principles of water erosion control? 4.0
C) Elaborate on the cropping and mulching measures of soil conservation. 5.0
5. A soil sample was collected from CAFF crop farm and given observations were recorded:-
 - Moist Weight of a core sampler = 270 g
 - Dry Weight of a core sampler = 240 g
 - Empty weight of core sampler = 63g
 - Height of core sampler = 6.0 cm
 - Diameter of core sampler = 5.0 cm
 - Particle density = 2.60Calculate the given parameters
A) Bulk density, 3.00
B) Volume of core sampler, 3.00
C) Percent pore space and 3.00
D) Moisture percent. 3.00

THE END