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University Examinations 2024/2025

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE,

AND

FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE, BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

AAA 3350: SOIL AND WATER CONSERVATION

DATE: JANUARY 2025 **TIME: 2 HOURS**

INSTRUCTIONS:

1. Answer Question ONE, and any other TWO

QUESTION ONE (30 MARKS)

a) Explain the challenges of soil and water conservation structures installation (6 Marks)

b) Describe the characteristics of conservation agriculture (6 Marks)

c) Differentiate between soil erosion and soil tolerance (4 Marks)

d) Explain the effect of climate change on soil erosion (6 Marks)

e) A given place has an area of 20000 m^2 and the lost soil depth is 0.01m. The soil has a density of 150 kg/m^3. Determine the total amount of soil loss in tons. (4 Marks)

f) Describe the Meskat type systems of water harvesting (4 Marks)

QUESTION TWO (20 MARKS)

a) Discuss the factors that influence tillage erosion (8 Marks)

b) According to soil survey of a given area, k= 0.8 and T = 5.0. The grower uses conventional tillage to grow continuous corn and ploughs up and down the slope. The farmer used no support practices so P= l. The value of R is 135 and the Value of LS is 0.6 while the value of c under conventional is 0.37.

i. Calculate the amount of soil loss (5 Marks)

ii. The farmer changes to contour ploughing, that is p changes from 1 - 0.5. The other factors remain the same. Determine amount of soil loss (4 Marks)

iii. Determine the soil erosion index of this area (3 Marks)

QUESTION THREE (20 MARKS)

a) Explain factors to consider when selecting conservation structure (10 Marks)

b) Explain three effects of conservation tillage on soil (10 Marks)

QUESTION FOUR (20 MARKS)

a) Discuss the manning formula (10 Marks)

b) Explain the benefits of conservation plan (10 Marks)