

**DEPARTMENT OF SOIL SCIENCE AND TECHNOLOGY,
FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI.
2012/ 2013 HARMATTAN SEMESTER EXAMINATION.**

COURSE CODE: SST 507

***COURSE TITLE: SOIL GEOMORPHOLOGY AND ENVIRONMENTAL
CONSERVATION TECHNIQUES.***

INSTRUCTIONS: ANSWER ANY FIVE QUESTIONS.

TIME ALLOWED IS 3HRS.

- 1 You have been awarded a contract by the State Ministry of Agriculture and Environment to erosion control, Discuss the various methods of erosion control you would adopt for effective execution of project.

- 2(a) Define the Universal Soil Loss Equation (USLE).
- 2 (b) Briefly discuss the factors involved in the formulation of the USLE.
- 2 (c) What is Soil Loss Tolerance.

- 3(a) Differentiate between geologic and accelerated erosion.
- 3(b) Describe a standard runoff plot.
- 3(c) What are the sources of error in a runoff plot experiment.

- 4 (a) Briefly write on the following (i) Detachment (ii) Transportation, (iii) Deposition
- 4(d) Describe the processes of wind erosion.

- 5(a) What is tillage?.
- 5b Differentiate between
 - (i) Conventional tillage and conservational tillage
 - (ii) Minimum and zero tillage
- 5c Discuss briefly the advantages and disadvantages of tillage.

- 6 Giving that the soil loss from an experimental field to be 20 tonnes per hectare per year, erosivity (R) = 300, Combined length and slope factor (LS) = 1.60, field slope= 5%, and cropping (P) factor= 0.6; calculate the erodibility (K) of the soil.
- 6b What are the principles of erosion and sediment control in a construction site?

- 7 (a) What are gullies?.
- 7 (b) What processes are involved in the formation of gullies
- 7 (c) What are the principles of gully erosion control?
- 7 (d) Describe two methods of mechanical control of gullies.