COLLEGE OF HEALTH AGRICULTURE & NATURAL RESOURCES

ARN 304 Geographical Information Systems

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER/ DECEMBER 2020

LECTURER: MS. B. BOLO

DURATION: 24 HRS

INSTRUCTIONS

Do NOT write your name on the answer sheet.

Answer (fully) any ONE question of your choice..

Begin your answer for each question on a new page.

Each full question carries 100 marks.

Your full answer should be between 10 and 15 pages

Font: Times New Roman, Font size 12, Line space:2.0.

Credit is given for neat, well-written and lucid work.

Question One

In cartographic map production, map projections and map scales are very important. A projection is a way to flatten a globe's surface into a plane in order to make a map, and a map scale refers to the ratio between distance on a map and the corresponding distance on the ground.

(a) Map scales are different, explain in detail the five (5) main differences between large and smaller scale maps **(10 marks)**

(b) Map projections have distortions; discuss five (5) main projection distortions **(10 marks).**

(c) Discuss in detail three (3) types of map projections, include examples and diagrams. **(40 marks)**

(d) Discuss in detail three (3) main different types of map scales with examples and diagrams. **(40 marks)**

Question Two

Remote sensing and GIS technologies are tools that are routinely used in management of natural resources.

(a) Remote sensing can be integrated with Geographical Information System, explain in detail two (2) types of data format used to produce geospatial information **(10 marks)**

(b) Explain, with examples how Remote sensing data can be captured. **(40 marks)**

(c) Critically explain ten (10) ways in which how Remote sensing can be used for monitoring and management of natural resources. **(50 marks).**

Question Three

Geographical Information System (GIS) is a computer based database system that can be used to provide geospatial information.

(a) Explain in detail five (5) ways how GIS in agriculture can help farmers to achieve increased production and reduced costs by enabling better management of agricultural resources **(50 marks)**

(b) Discuss in detail five (5) advantages and five (5) challenges of implementing GIS in an organization **(50 marks).**