

DEPARTMENT OF GEOGRAPHY & ENVIRONMENTAL SCIENCES
B.Sc & BA. SUPPLEMENTARY EXAMINATIONS
ES 2411: INTRODUCTION TO CARTOGRAPHY

August 2023

Marks: 100

TIME: 3 Hours

Instruction: Answer FOUR (4) questions. Where appropriate illustrate your answers with sketches or diagrams.

- a) The coordinates of Mzalas are 27.65610528 E and -29.37209278 S Decimal Degrees. **With a well defined methodology**, Convert these coordinates to Degrees Minutes and Seconds (5)
- b) Given that the radius of the Semi-major axis is 6381245m and that of the semi-minor axis is 6342863m calculate the following
 - i) Flattening (f) (5)
 - ii) Eccentricity (e) (5)
- c) Draw a polygon of 1 ha/ 10000m² at the scale of 1: 2000
- d) Outline any five characteristics of an ideal map (5)

[25]

Question 2

- a) Differentiate between the topographic and topo-cadastral maps. (8)
- b) With the aid of diagrams, differentiate between a spheroid and an ellipsoid (8)
- c) Distinguish between large and small scale maps and present examples where you may use each (4)
- d) Outline different ways in which scale can be indicated on a map. Illustrate with examples on each (5)

[25]

Question 3

- a) Discuss what the datum is (5)
- b) With the aid of a diagram, outline what a Geoid is (5)
- c) With the aid of a diagram, discuss the geodetic latitude (10)
- d) Explain why the geodetic latitude is used on large scale maps (5)

[25]

Question 4

Discuss the importance of map projections in cartography (25)

Question 5

Explain five differences between the geographic and projected coordinate system (25)

Question 6

- a) Briefly describe the following standard properties of map projections:
 - i. Equal-area (5)
 - ii. Equidistant (5)
 - iii. Conformal. (5)
 - iv. Azimuthal (5)
- b) Write short notes on cylindrical map projections (5)