

THE UNIVERSITY OF ZAMBIA
UNIVERSITY EXAMINATIONS - JUNE, 1996

SE 321 - CARTOGRAPHY I

Time: Three hours

Answer: All questions in Part A and one in Part B

Part A

1. Explain briefly the following cartographic terms:
a) Standard Line, b) Folding resistance, c) Micronorm-classification,
d) Graticule, e) Representative fraction, f) Derived topographic map,
g) Graphical accuracy, h) PE, i) General plan, j) Phototypesetting.
(20)

2. In the appendix 1 you will find an extract from a Zambian map with the declination diagram and a list related to the mathematical values of the same sheet.
(a) What is the map and the sheet number of it?
(b) What is the field bearing now if the grid bearing which is measured on this map is $232^{\circ}10'$.
(c) In the appendix you will find a list of things related to the mathematical values of the map. Fill the list as it should appear on this map.
(6+6+8)

3. In Zambia two different grid systems are in use, one for national mapping and the other for cadastral surveys.
(a) What are these systems?
(b) What is common and what are the differences?
(c) Why one system is not enough?
(4+10+6)

4. (a) For the lettering of a map there are many variations to choose. Which different ways the lettering can be varied?
(b) How are the differences of the features expressed on the maps by lettering?
(c) Which methods of lettering are used in mapmaking?
(7+7+6)

Part B

1. You are using a 1: 1.5 million map, of which projection is Mercator and spherical assumption ($R=6371.1\text{km}$) has been used in its construction. What are:
- a) scale factors
 - b) actual scales and
 - c) lengths of 1° of longitude (on the map) on 8°S and 18°S parallels (Zambia is situated between these parallels)?

(7+6+7)

2. a) What is the constructional grouping of map projections?
b) What kind of distortions in geometrical relationships you can expect in different map projections and how the projections are 'classified' in this case?
c) What is the *Tissot's Theorem* and what is the meaning of *Indicatrix* in it?

(4+6+10)

END OF THE EXAMINATION