

UNIVERSITY OF SOUTH AUSTRALIA

FACULTY OF ENGINEERING AND THE ENVIRONMENT

School of Geoinformatics, Planning and Building

Semester 1, 1998

Surveying Science 3 : 09105
Surveying Science 3A : 10243

Time Allowed : 2 hours + 10 minutes reading time

General Instructions to Candidates

Total Marks = 100

Attempt ANY THREE questions.

All questions are of equal value.

Please ensure front of answer book is completed with your name, student I.D. number, course and section of the examination (if applicable).

QUESTION 1

Discuss the following aspects of Electronic Distance Measurement :

- a) meteorological corrections; and
- b) calibration of short range EDM.

QUESTION 2

Discuss the main aspects of a large topographical survey in the outback of Australia if conventional terrestrial survey methods are to be used.

QUESTION 3

Discuss the techniques of precise levelling for a first-order vertical control network under the following headings :

- a) instrumentation; and
- b) observation procedures.

QUESTION 4

Show that the basic formula for trigonometric levelling between two stations (A and B) is given as :

$$\Delta h = s \tan \alpha + \frac{(1 - k)s^2}{2R}$$

where Δh = height difference from A to B
 s = the horizontal distance AB
 α = angle of elevation from A to B
 k = coefficient of refraction
 R = radius of the earth