

The University of Melbourne
Semester Two Assessment 2003

Department: Geomatics
Subject Number: 451-337
Subject Title: Satellite Positioning and Geodesy
Exam Duration : 3 hours
Reading Time : 15 minutes

This paper has 3 pages including the cover

Authorised Materials:

Electronic calculators are permitted

Instructions to Invigilators:

Students require script books

Instructions to Students:

All five(5) questions are to be attempted
All answers are to be written in the script books provided
All questions carry equal marks

Baillieu Library:

Paper is to be archived in the Baillieu Library

1. You have been given the responsibility of writing a technical justification in support of the adoption of the new Geocentric Datum of Australia (GDA94). Your justification is to be aimed at a technically competent but somewhat skeptical audience. That is, they are able to understand geodetic concepts but doubt the real value of moving to the new datum. Write your report. (30 marks)
2. (a) Using fully labelled diagrams where appropriate, provide *complete* definitions for the following :
- Geographical coordinates
 - Precise ephemeris
 - Geoid undulation
- (15 marks)
- (b) One of the keys to optimising the precision and accuracy achievable from GPS positioning is to understand and manage the various sources of error. Describe the errors that occur at a GPS receiver and discuss ways in which a user seeking optimum precision could minimise the impact of these errors. (15 marks)
3. Information transmitted by each GPS satellite includes two L-band carriers (L1 and L2), two pseudo-random noise codes (C/A-code and P-code) and the satellite message. Your task is to describe each of these components and to explain how they are used by those employing GPS for positioning and navigation. (30 marks)

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