

Department of Geomatics
451-337 Satellite Positioning and Geodesy
Mid-Semester Test 2004

Attempt to answer all questions
All questions are worth 10 marks

Question 1 (*Geodetic Coordinates and Reference Frames*)

Using AGD66 as an example, discuss the concepts of geodetic datum definition and realisation.

(10 marks)

Question 2 (*Introduction to GPS*)

Fully describe the GPS signal structure including details of the carriers, codes and the satellite message.

(10 marks)

Question 3 (*Code Based GPS Positioning*)

(a) Explain how a GPS receiver measures a pseudo-range.

(5 marks)

(b) Develop the (non-linear) pseudo-range observation equation.

(5 marks)

Question 4 (*Miscellaneous*)

(a) What is the difference between coordinate conversion and coordinate transformation?

(2 marks)

(b) What two critical purposes does the GPS C/A code serve?

(2 marks)

(c) What is the broadcast ephemeris?

(2 marks)

(d) Explain DOP and how DOP factors can be used when planning a GPS survey?

(2 marks)

(e) Explain why a GPS satellite will be in exactly the same place four minutes earlier tomorrow than it was today.

(2 marks)

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