

Department of Geomatics
451-337 Satellite Positioning and Geodesy
Mid-Semester Test 2006

Attempt to answer all questions
All questions are worth 10 marks

Question 1 (*Geodetic Coordinates and Reference Frames*)

- (a) Explain in detail how GDA94 has been implemented in Australia. Discuss the advantages and shortcomings of GDA94. *(6 marks)*

- (b) Briefly describe the four steps in datum realisation. *(4 marks)*

Question 2 (*Introduction to GPS*)

- (a) GPS satellites transmit a satellite message consisting of three data blocks. Describe the various contents of each block. *(10 marks)*

Question 3 (*Code Based GPS Positioning*)

- (a) Develop the non-linear pseudo-range observation equation, taking care to define each term. *(5 marks)*

- (b) Explain how the various Dilution of Precision (DOP) factors can be derived from the solution of the equation derived for Question 3(a). *(5 marks)*

Question 4 (*Miscellaneous*)

- (a) Compare and contrast GPS today with GPS after completion of the planned modernisation program. *(5 marks)*

- (b) Describe the main differences between the broadcast ephemeris and the precise ephemeris. Under what circumstances might a GPS user choose to use the precise ephemeris? *(5 marks)*

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