

2001 Paper 7 Question 15

Additional Topics

- (a) Describe the major functions of the Space, Control and User segments of the Navstar Global Positioning System. [8 marks]
- (b) Explain the meaning of the term *pseudo-range*, and why at least four pseudo-ranges are necessary for a three-dimensional position fix. [4 marks]
- (c) How does the geometry of the satellites affect the accuracy of the position fix, particularly in built-up areas? Illustrate your answer with a sketch. [4 marks]
- (d) If an alternative satellite system measured ranges directly, perhaps by round-trip timing, how might the geometrical effects in built-up areas be altered? Illustrate your answer with a sketch. [4 marks]