

1998 Paper 9 Question 3

Computer System Modelling

An M/M/m queue has an arrival process with mean rate λ , and processes customers at a mean rate of μ .

- (a) What are the distributions and parameters of the inter-arrival and service times of customers? [3 marks]
- (b) Sketch an outline proof showing that the distribution of the departure process from the queue is the same as that of the arrivals process. [10 marks]

Briefly contrast analytical queueing analysis and discrete event simulation with regard to their fields of applicability and other important considerations for the systems modeller. [7 marks]