

COMP9334 Revision Problems for Week 4B_1

Question 1

A computer system receives requests from a Poisson process at a rate of 10 requests/s. Assume that 30% of the requests are of type a and the remaining are of type b .

For request type a , its average service time is 0.1 seconds and the coefficient of variation of its service time is 1.5.

For request type b , its average service time is 0.08 seconds and the coefficient of variation of its service time is 1.2.

Compute the average response time for each type of request under the following scenarios:

1. Requests of types a and b have equal priorities
2. Requests of type b have non-preemptive priority over requests of type a
3. Requests of type b have preemptive priority over requests of type a

(This question is taken from Q5 in Chapter 11 of Mensace et al, "Performance by Design")