ABSTRAK

PT. X Mobilindo bergerak dibidang jasa servis kendaraan roda empat yang memiliki tiga tahap antrian yaitu tahap pertama antrian estimasi biaya servis, tahap kedua antrian proses servis dan tahap ketiga antrian cuci kendaraan dengan model antrian *(M/M/c):(FCFS/∞/∞/)* dan menggunakan disiplin antrian *first come first out*. Untuk mengetahui pola distribusi waktu kedatangan dan waktu pelayanan ditiap tahapan antrian diuji menggunakan uji Chi Kuadrat dengan nilai χ^2 hitung kedatangan masing-masing tahapan secara berurutan yaitu 20,3279; 19,2985 dan 9,8728 lebih kecil dari nilai χ^2 tabel 49,8019 sehingga hipotesis diterima yang artinya pola waktu kedatangan berdistribusi Poisson, sedangkan χ^2 hitung waktu pelayanan masing-masing tahapan secara berurutan yaitu 6,5916; 41,1071 dan 3,4289 lebih kecil dari nilai χ^2 tabel 49,8019 sehingga hipotesis diterima yang artinya pola waktu pelayanan berdistribusi Eksponensial. Sistem antrian tahap pertama sudah optimal menggunakan 2 fasilitas pelayanan dengan nilai *steady-state* 0,48 dan rata-rata waktu yang dihabiskan pelanggan dalam antrian selama 0,09 jam, sedangkan sistem antrian tahap kedua menggunakan 8 fasilitas pelayanan juga dikatakan optimal dengan nilai *steady-state* 0,52 dan rata-rata waktu yang dihabiskan pelanggan dalam antrian selama 0,04 jam begitu pula dengan hasil pada sistem antrian tahap ketiga dengan 2 fasilitas pelayanan memiliki nilai *steady-state* 0,48 dikatakan optimal karena memenuhi keadaan *steady-state,* sehingga dapat dikatakan sistem antrian PT. X Mobilindo memiliki sistem antrian yang sudah optimal.

Kata kunci: *multi channel-multi phase*, teori antrian, uji Chi Kuadrat.

ABSTRACT

PT. X Mobilindo engages in a four wheels vehicle service, which has three stages of queuing. The first stage is the cost estimation queuing service, it is followed by service process, and then the car wash using the queuing model (M/M/c):(FCFS/∞/∞/) , and using queuing discipline of first come first out. To identify the distribution pattern of the arrival and service time in each queuing is tested by using Chi quadrat with the value χ^2 count of each arrival steps in sequence 20,3279; 19,2985 , and 9,8728 is fewer than the value of χ^2 table 49,8019 that the hypothesis is accepted, meaning that the time pattern of the arrival, Poisson distribution, while the χ^2 time count of each service time sequentially, which is at 6,5916; 41,1071 and 3,4289 is fewer than the χ^2 value of table 49,8019, that being said, the hypothesis is accepted, meaning that the time service pattern of exponential distribution. The queuing system of the first step is optimal, using two service facilities with the steady-state value 0,48 and the average time spent on the customer's queuing for 0,09 hours, while the queuing system of the second step uses eight service facilities is also optimum with the steady-state 0,52, and the average time spent by the customers in the queue for 0,04 hours. The same goes to the result if the third queue with two service facilities that has steady-state 0,48 could also be said optimum because it meets the situation of steady-state. Therefore, it could be said that the queuing system at PT. X Mobilindo has the optimum queue.

Keywords**:** *multi channel-multi phase,* queuing theory , Chi quadrat test.