SIMATS ENGINEERING

THANDALAM

ASSIGNMENT - 04

NAME

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• REGISTER NUMBER : 192511172

• COURSE CODE : CSAD735 , COMPUTER

NAME NETWORKS FOR

COMMUNICATION

DEPARTMENT : BE COMPUTER

SCIENCE AND

ENGINEERING

SUBMISSION : 28/07/2025

DATE

TOPIC

: MULTI - SERVER

QUEUE

ANALY515

SIMATS ENGINEERING

ASSIGNMENT - DY

CSAD735 : COMPUTER NETWORK FOR

COMMUNICATION

REGISTER NUMBER	NAME	SCENARIO
192511172	SAMRAKSHINI.G	A MULTI-SERVER QUEQUE HANDLES PAYMENT REQUESTS

PARAMETERS: → 5 SERVERS → 1=1001S → 1=301S

QUESTIONS :

1. WHAT IS THE TOTAL SERVICE

RATE ?

egiven data:

brower | steamper 001 = (1) star lavires (i

iil Service rate per second - (11)
50 request locand 5

iii) Number of service (c) = 30 services

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TOTAL SERVICE RATE : CXL

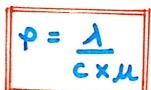
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is collectively capable of processing 150 sonver's payment requests per second.

2) WHAT IS UTILIZATION ?

Utilization (9) is the ratio of the incoming workload to the system's processing capacity. It helps in assessing whather the system is underloaded, optimally leaded or overloaded.



Here $\lambda = 10015$ C = 5 $\mu = 3015$

. SUBSTITUTING THE VALUES:

$$P = \frac{100}{5 \times 30} = \frac{100}{150} = 0.6667$$

This implies that that an motories of the conjuments of the conjuments of the conjuments of the conjuments of the test that the same of the conjuments of th

nodu oldate berebiaros ara considered estable when griphing and more efficient when 920.9, depending on source needs.

B) IF ONE SERVER IS ADDED, WHAT IS NEW UTILIZATION P

- NO. OF. SERVERS C = 6
- SERVICE RATE PER SERVER REMAINS THE SAME

$$\mu = 30/s$$

$$\rho_{\text{new}} = \frac{\lambda}{c \times \mu}$$

$$\rho_{\text{new}} = \frac{100}{6 \times 30} = \frac{100}{180} \approx 0.5556$$

- → With the addition of 1 more server, the system's utilization drops to 55.56%
- represent in terms of handlings for an activation of the probability of appearing the probability of appearing delays. It means;
 - → Shorter maiting time
 - Lower probability of customer queue buildup.
 - More space capacity.