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Strathmore
UNIVERSITY

STRATHMORE UNIVERSITY
SCHOOL OF COMPUTING AND ENGINEERING SCIENCES
BACHELOR OF SCIENCE IN COMPUTER NETWORKS AND CYBER SECURITY
Assignment 1 - Times
BTC 3201 – WAN TECHNOLOGIES

DATE: 21 June, 2023   Time: 1 Hour

Instructions
Attempt **ALL** questions.

Question 1

a. Name the four SONET VT types and calculate the data rate of each.   [**6 Marks**]
b. Calculate the approximate number of PRI ISDN services (American standards) that can fit into a SONET STS-1 frame.   [**2 Marks**]
c. Explain what Simulated Brillouin Scattering is and how it affects fiber optic communications.   [**2 Marks**]
d. Describe four types of delay that affect transmission of data on computer networks?   [**5 Marks**]
e. Using diagrams explain how the following congestion control mechanisms operate: choke packet, back pressure and implicit congestion control   [**5 Marks**]
f. Suppose two hosts, A and B, are separated by 20,000 kilometres and are connected by a direct link of R = 2 Mbps. Suppose the propagation speed over the link is 2.5×10^8 meters/sec. Consider sending a file of 800,000 bits from Host A to Host B. Suppose the file is sent continuously as one large message. What is the maximum number of bits that will be in the link at any given time?   [**4 Marks**]