

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in Computer Science and Engineering

Final Exam, Autumn 2024

Course Code: CSE 3633

Course Title: Computer Networks

Time: 2 hours 30 minutes

Full Marks: 50

(i) The numbers on the right-hand margin indicate full marks

(ii) Course Outcomes and Bloom's Levels are mentioned in additional Columns

Part A

[Answer the questions from the followings]

- | | | | | |
|-------|--|-----|----|---|
| 1. a) | Write some differences between leaky bucket and token bucket algorithm. How does token bucket allow bursts of data to pass? | CO3 | An | 5 |
| 1. b) | Why choke packet degrade network performance. What is an alternate of choke packets to slow down sender's packet transmission rate? | CO3 | An | 5 |
| 2. a) | Why is flooding called a robust routing algorithm? Describe flooding with an illustration. | CO2 | An | 5 |
| 2. b) | How does congestion control differ from flow control? What if routers enlarge their buffer to infinity to avoid packet loss in congestion? | CO2 | An | 5 |

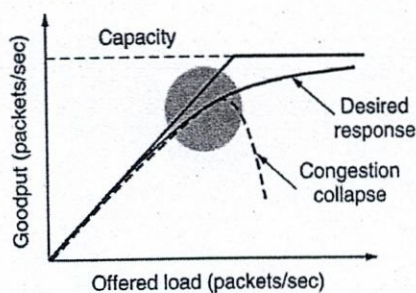
OR

- | | | | | |
|-------|---|-----|----|---|
| 2. a) | What is the primary role of BGP (Border Gateway Protocol) in the context of Autonomous Systems? | CO2 | Ev | 5 |
| 2. b) | Computer A has 100MB data to send on a network and transmits the data in a burst @20 Mbps. The maximum transmission rate across routers in the network is 10 Mbps. If Computer A's transmission is shaped using a leaky bucket with sufficiently large size then the required time it will take to send into the network is 80s. What is the bucket size? | CO2 | Ev | 5 |

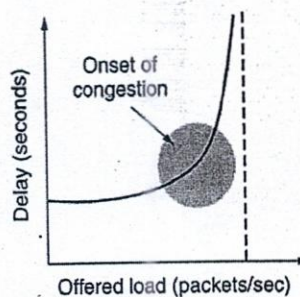
Part B

[Answer the questions from the followings]

- | | | | | |
|-------|--|-----|----|---|
| 3. a) | Explain how transport layer connections are managed with primitives. | CO2 | An | 5 |
| 3. b) | Provide functions of any three fields of the TCP header. | CO2 | An | 5 |
| 4. a) | Explain TCP connection establishment with 3 way handshake. | CO4 | An | 5 |
| 4. b) | Analyze and explain the following figures. | CO3 | An | 5 |



(a)



(b)

5. a) What are domain resource records? Provide an example of a DNS database of your choice. CO3 Un 5
5. b) When does a deadlock occur in dynamic buffer management between a sender process and a receiver process? CO3 Ap 5

OR

5. a) Compare and contrast DNS iterative queries and recursive queries, providing proper examples. CO3 Ap 5
5. b) What are the relationships between the protocols SMTP, IMAP, and POP3? CO3 Un 5