COMSATS University Islamabad, Abbottabad Campus
Department of Computer Science

Final-Term Examination(Sp 2024)

Class: BCS-4A,B & BSE 7A
Subject: Computer Networks
Total Time Allowed: 3 Hours
Name: _____

Date: 23 July, 2024
Instructor: Ayesha Irshad
Max Marks: 60 Marks
Reg. # _____

SECTION-A |CLO-1 & 2, Marks 20|

Q1. Discuss the impact of network topology on a network's performance and reliability. Compare and contrast different topologies (e.g., star, mesh, ring, bus) and explain how network components like routers, switches, and hubs function within these topologies. (CLO-1 Marks:10)

Q2. a) How do transmission and propagation delays connect to overall network performance? Explain with an example of video streaming where each delay type might be significant. (CLO-2 Marks:5+5)

b) Illustrate the process of establishing a TCP connection between a client and a serve

SECTION-B |CLO-3, Marks 20|

Q3. a) Compare the working of Go-Back N with Selective-Repeat. (CLO-3 Marks:5+5)

b) Outline the role of ICMP in network communication.

Q4. a) Describe the three rules that shorten an IPv6 address. (CLO-3 Marks:5+5)

b) Apply these rules to shorten the following IPv6 address:

2001:0db8:0000:0000:0000:ff00:0042:8329 x^3

SECTION-C |CLO-4, Marks 20|

Q5. a) If the given frame is 1100111011 and the generative polynomial is x^3+x+. (CLO-4 Marks:5+5)
Calculate the checksum and actual transmitted frame by using the standard CRC method.

b) What do you know about Mobility management in wireless Networks?

Q6. The network uses a Distance Vector Routing protocol. Once the routes have stabilized, the distance vectors at different nodes are as follows. N1: (0, 1, 7, 8, 4) N2: (1, 0, 6, 7, 3) N3: (7, 6, 0, 2, 6) N4: (8, 7, 2, 0, 4) N5: (4, 3, 6, 4, 0) Each distance vector is the distance of the best-known path at the instance to nodes, N1 to N5, where the distance to itself is 0. Also, the cost is identical in both directions. In each round, all nodes exchange their distance vectors with their respective neighbors. Then all nodes update their distance vectors. In between two rounds, any change in the cost of a link will cause the two incident nodes to change only that entry in their distance vectors. The cost of link N2-N3 reduces to 2 (in both directions). After the next round of updates, what will be the new distance vector at node N3? (CLO-4 Marks:10)

Best Of Luck

CamScanner