

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-2 B. Sc. Engineering Examinations (January 2020 Semester)

CSE 321 (Computer Networks)

Full Marks: 180 Section Marks: 90 Time: 2 Hours (Sections A + B)

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION –AThere are **FOUR** questions in this section. Answer any **THREE**.

1 a) Consider a host (X) in a LAN wants to communicate another host (Y) in a remote LAN. Explain the ARP operation in such a scenario with the necessary diagram. (10)

b) Consider you are given the address space **172.16.10.0/23**. Now you are to subnet the address according to the host requirements for different departments that are given in the following table. Then fill up the empty columns with values resulting from your calculation. Use the smallest subnet sizes that will accommodate the relevant number of hosts and do not leave any gap (at the start of given address space or between the subnets). (20)

Department	No. of hosts required	Network address	Broadcast Address	Subnet Mask
Sales	100			
Service	90			
Accounts	30			
Sales	12			
HR	10			

2a) “Sending hop-by-hop choke packets performs better than sending the choke packet to the sender”- Do you agree with the statement? Justify your opinion with necessary figure(s). (10)

b) What are the different tables required for OSPF routing? How can a router build those tables during the OSPF operation? Which table contributes to provide full network structure to each OSPF router? (10)

c) What can be a possible solution to Count-to-infinity problem? Explain briefly. (10)

3a) What is the purpose of DHCP relay agent? Show its operation using a topology diagram. (10)

b) Compare TCP Tahoe with TCP Reno congestion control algorithm with necessary figure(s). (10)

c) In a TCP session, the receiver sends ACK=1 with a sequence number 8192 and Window Size 0. What does it imply to the sender? (10)

4a) What is non-authoritative DNS resolution? When can it happen? Do you trust such resolution? (10)

b) What is the purpose of cookies in HTTP communication? What are its benefits and drawbacks? (10)

c) Explain the roles of SMTP and IMAP protocols in email communication using necessary figure. (10)