

Continuous Assessment – 2
Computer Networks (CSE306)
Faculty: Dr. Goutam Majumder

Section – K20PK

Total Marks – 30

Last Date – 27th March

Before attempting questions and uploading answer sheet read all instructions.

- All questions are compulsory.
- Group-1 Students will attempt Set-1 and Group-2 Students Set-2
- Assignment will be in handwritten only
- The uploading file should be in PDF format.
- Copying answer from each other will award zero marks
- All the answer sheets must contain students name, roll number

Set – 1

1. Answer the followings

- (a) State the difference between VLSM and FLSM and identify the advantages of VLSM over FLSM. 2
- (b) Explain various types of addresses supported in IPv6 with their reserved bits. 2
- (c) Consider the following 4 small network IDs 6
 - (i) 200.1.0.0/24
 - (ii) 200.1.1.0/24
 - (iii) 200.1.2.0/24
 - (iv) 200.1.3.0/24

List out all the steps required to create a supernet by combining small networks and Identify the supernet ID with supernet Mask

2. Calculate the followings:

- (a) You have been allocated a class A network address of 29.0.0.0. You need to create at least 20 networks and each network will support a maximum of 160 hosts. Would the following two subnet masks Work? 255.255.0.0 and 255.255.255.0. 3
Show all the necessary steps
- (b) Write the IP address in CIDR format 135.1.1.25 mask 255.255. 248.0. 2
- (c) A 20 Kbps satellite link has a propagation delay of 400 ms. The transmitter employs the “go-back-n-ARQ” scheme with **n** set to 10. Assuming that each frame is 100 bytes long and calculate the followings: 5
 - (i) Transmission Delay
 - (ii) Find Efficiency
 - (iii) Find maximum data rate possible

- 3. a) Differentiate between the datagram approach and virtual circuit approach to transfer the packets from source to destination at network layer. Which is better and why? 5
- b) What are the differences between classful addressing and classless addressing in IPv4? List the classes in classful addressing and define

the application of each class. Explain why most of the addresses in class A are wasted. 5

Set – 2

- 1 a) Explain how Selective repeat request works with window size of 8. 5
b) An organization is granted the block 16.0.0.0/8. The administrator wants to create 500 fixed-length subnets. 5
 - a. Find the subnet mask.
 - b. Find the number of addresses in each subnet.
 - c. Find the first and last addresses in subnet 1.
 - d. Find the first and last addresses in subnet 500.
- 2 a) Find the range of addresses in the following blocks. 5
 - (i) 123.56.77.32/29
 - (ii) 200.17.21.128/27
 - (iii) 17.34.16.0/23
 - (iv) 180.34.64.64/30
 - (v) 192.3.4.0/27b) Calculate the subnet mask for the Class C IP Address 195.1.1.0 So that you have 10 subnets each with a maximum 12 hosts on each subnet. List the Address on host 1 on subnet 0, 1, 2, 3, 10 5
- 3 a) Subnet the Class C IP Address 205.11.2.0 so that you have 30 subnets. Calculate the subnet mask for the maximum number of host. 3
b) Suppose that the sender wants to send 4 frames each of 8 bits, where the frames are (CC, AA, F0, C3). Find Longitudinal Redundancy Check (LRC), Vertical Redundancy Check (VRC) and checksum. 7