

International Islamic University Chittagong
Department of Electronic and Telecommunication Engineering

Final Examination, Autumn 2021

Course Code: ETE-4729

Course Title: Computer Networks

Full Marks: 50

Time: 2h 30min

[Answer any two from Part-A and any three from Part-B of the following questions]

Part-A

- 1.a) Explain the following strategies for transition from IPv4 to IPv6 with figures: 5 CO1+CO2
i) Dual Stack
ii) Tunneling
iii) Header Translation
- b) What are the advantages of IPv6. A classless address is given as 5 CO1+CO2
167.199.170.82/27. Find the number of addresses, first address and last address of the respective network.
- 2.a) Show the occupation of the address space in classful addressing. 3 CO1+CO2
b) An organization is granted a block of addresses with the beginning address 7 CO1+CO2
14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks. Also represent the resulted design using figure.
- 3.a) Explain the operation of DHCP with proper figure. 5 CO1+CO2
b) Explain the special addresses of IPv4. 5 CO1+CO2

Part-B

- 4.a) Explain IPv6 datagram with figure. 5 CO1+CO2
b) For the following given content of a UDP header in hexadecimal format, 5 CO1+CO2
CB84000D001C001C
Find:
(i) What is the source port number?
(ii) What is the destination port number?
(iii) What is the total length of the user datagram?
(iv) What is the length of the data?
(v) Is the packet directed from a client to a server or vice versa?
(vi) What is the client process?
- 5.a) Explain the security of DNS. 5 CO1+CO2
b) Explain with Uniform Resource Locator (URL) with proper examples. 5 CO1+CO2
- 6.a) Explain the operation of FTP with figure. 5 CO1+CO2
b) Explain web based mail for the following two cases: 5 CO1+CO2
i) Case 1: Only receiver uses HTTP
ii) Case 2: Both sender and receiver use HTTP
- 7.a) Write about User Datagram Protocol and User datagram packet format. Also 6 CO1+CO2
briefly write about TCP, SCTP and UDP.
- b) Suppose a TCP connection is transferring a file of 5000 bytes. 4 CO1+CO2
The first byte is numbered 10001. What are the sequence numbers for each segment if data are sent in five segments, each carrying 1000 bytes?