

Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
200 level 1st Semester Examination – May/July 2017
CST232-2 Computer Networks-II



Instructions to candidates

Number of questions: Four (04)

Time allocation: Two (02) hours

Mark allocation: 100

Answer all the questions.

1.
 - a. How do the layers of the TCP/IP model correlate to the layers of the OSI model? (4 mark)
 - b. Briefly explain the data encapsulation in OSI model using a relevant diagram. (5 mark)
 - c. Describe the functions of Transport layer in OSI model. (10 mark)
 - d. Explain transport layer protocols of OSI model. (6 mark)

2.
 - a. Write three (03) IP address classes and the characteristics of those in brief. (6 mark)
 - b. An organization is granted the block 130.56.0.0/16. The administrator wants to create 1024 subnets.
 - i. Find the subnet mask. (2 mark)
 - ii. Find the number of addresses in each subnet. (4 mark)
 - iii. Find the first and the last addresses in subnet 1. (4 mark)
 - iv. Find the first and the last addresses in subnet 1024. (4 mark)
 - c. What are the differences between classful addressing and classless addressing in IPv4? (5 mark)

3.
 - a.
 - i. What is error detection? (2 mark)
 - ii. List four (04) methods of error detection and explain one (01) of them in brief. (4 mark)
 - b. Suppose you want to transmit the data 11110000 and the generator polynomial is x^4+x^3+1 . Determine check bits and coded word. (*Hint: use Cyclic redundancy check*) (8 mark)
 - c. What is the main difference between open loop and close loop congestion control techniques? (4 mark)
 - d. Explain the 'Choke packets' approach in close loop congestion control. (7 mark)



4.

- a. Differentiate link state routing with distance-vector routing.
- b. Consider the table shown in Table 1.

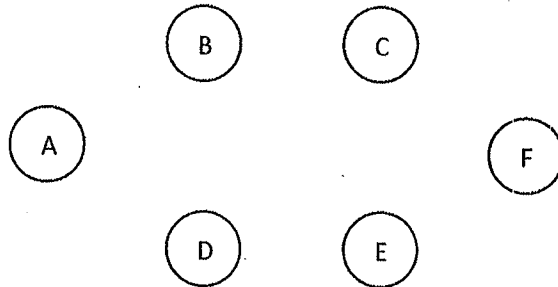
(6 mark)

Table 1 : Link State Packets (LSPs) entering a router

Router	Router A		Router B		Router C		Router D		Router E		Router F	
Links	C	1	A	2	A	1	B	5	A	3	C	8
Links	B	2	D	5	F	8	E	3	F	1	E	1
Links	E	3	-	-	-	-	F	1	D	3	D	1

- i. Based on the above LSPs, construct the topology of the network.

(8 mark)



- ii. Using the Dijkstra's shortest path algorithm, determine the shortest path from A to D. Specify the shortest path between A and D and its respective cost.

(11 mark)