Nepal College of Information Technology

Level: Bachelor | Semester- Spring | Year: 2021
Programme: BE | Full Marks: 100
Course: Computer Networks | Pass Marks: 45
Assessment | Time: 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions

1	a	You are assigned to design a network infrastructure for a NCIT college. Recommend a network solution with hardwares and softwares in current trend that can be used in college. Make necessary assumptions and justify your recommendations with logical arguments where possible.	8
	b	Differentiate between TCP/IP and OSI Model. Define Frame Relay in detail.	7
2	a	What do you mean by switching in communication? Compare switching with multiplexing. Explain the El Telephone hierarchy system.	7
	b	What are the functions of data –link layer? Explain the channel allocation problem with example.	8
3	a	How can you dedicate 10,12,.8, 14 public IP addresses to department A, B, C and D respectively from the pool of class C with minimum losses of IP? Explain	8
	b	What is the difference between Error Correcting and Error detection process? A bit string 01111011111011111110 needs to be transmitted at the data link layer. What is string actually transmitted after bit stuffing, if flag patterns is 01111110.	7
4	a	Differentiate between adaptive and non-adaptive routing. Explain shortest path finding algorithm in link state routing. .	7
	b	How connection is established and released in TCP. Explain Token Bucket algorithm	8
5	a	What do you mean by email server? What are the protocols used on it?	8
	b	Write down the steps involved in RSA encryption algorithm. Encrypt the word CAT using RSA algorithm; choose the suitable data for encryption by yourself according to RSA algorithm.	7
6	a	Explain briefly how firewalls protect network and also explain different types of Firewall. Illustrate your answer with appropriate figure	8
	b	What are the factors that lead to the speedy development of IPv6? Define the process of transition from IPv4 to IPv6	7
7		Answer any two:	5x2=10
	a	CSMA/CD	
	b	Hamming Code	
	c	Network Performance	