KATHMANDU UNIVERSITY
End Semester Examination
August/September, 2017

SEP 10 2017

Level : B. E./ B. Sc.
Year : II
Time : 2 hrs. 30 mins.

Course : COMP 204
Semester : II
F. M. : 40

SECTION "B"

[6 Q. × 4 = 24 marks]

Attempt *ANY SIX* questions:

1. Compare between TCP/IP model and OSI model. [4]

2. Explain guided media and its types with suitable diagram. [4]

3. What do you mean by transmission impairment? Write in brief the factors that causes the transmission impairment. [1+3]

4. Explain with suitable diagram how Pure ALOHA works. What is the vulnerable time of pure ALOHA? Explain how the efficiency of pure ALOHA protocol be increased. [1.5+1+1.5]

5. An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets. First subblock of 10 address, second subblock of 60 addresses and third subblock of 120 addresses. Design the subblocks. [4]

6. Explain the working mechanism of Go-Back-N ARQ with suitable flow diagram. [4]

7. Write short notes on (*ANY TWO*) [2+2]
   a. Denial of Service
   b. DNS
   c. Bellman-Ford routing algorithm
   d. Network Address Translation (NAT)

SECTION "C"

[2 Q. × 8 =16 marks]

Attempt *ANY TWO* Questions:

8. Explain the working mechanism of CDMA and write down its associated properties. Finds the chips for a network with two stations. [2+5+1]

9. a. How does a single-bit error differ from a burst error? Find the Hamming distance between $d(000, 011)$ and $d(10101, 11110)$. [2+1]
   b. Explain the working of simple parity check code with diagram for encoder and decoder. Assuming 4 bit data word generate all possible codeword showing that simple parity check guarantees to detect any even number of errors. [2+1+2]

10. a. Explain three way handshake protocol with clear flow diagram. [4]
    b. Explain "count to infinity" problem with suitable example. [3]
    c. If a periodic signal is decomposed into five sine waves with frequencies of 100, 300, 500, 700 and 900 Hz, what is the bandwidth ? [1]