

## POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Computer Networks

Semester: Spring

Year : 2017  
Full Marks: 100  
Pass Marks: 45  
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) Define computer network. Mention its advantages and disadvantages. Briefly explain any four network topological models. 7  
b) What is OSI model? Describe different layers in the OSI model. 8
2. a) With diagram, explain the components of packet switching. 7  
b) Define error in data transmission. With code example, explain cyclic redundancy check (CRC) encoder and decoder. 8
3. a) Mention different types of random access protocols. Explain the working mechanism of Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA). 7  
b) What is IPv6? Discuss on the structure of IPv6 addressing mechanism. Explain the benefits of IPv6 over IPv4. 8
4. a) With diagrams, differentiate multicasting with multiple unicasting. Discuss on different applications of multicasting. 7  
b) Briefly explain the features of TCP. Describe the structure of TCP segment format. 8
5. a) Define congestion in data communication. What are the categories of congestion control? Explain them. 7  
b) What do you mean by protocol? Explain the two protocols which are used in message accessing. 8
6. a) Why you need to manage computer network? How could you achieve it? Describe different functions of network management system. 7  
b) Define cryptography and briefly explain its types. With example, explain Diffie-Hallman key exchange method. 8
7. Write short notes on: (**Any two**) 2×5
  - a) OSI vs TCP/IP
  - b) Selective-repeat-request
  - c) Distance Vector Routing