POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2018
Programme: BE | Full Marks: 100
Course: Computer Network | 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) You are assigned to design a network infrastructure for your college. Recommend a network solution with hardware and software in current trend that can be used in the college. Make necessary assumption and justify your recommendation with logical argument where possible. 8
   b) Discuss the Seven Layer of OSI protocol stack. Also compare TCP/IP and OSI with a suitable example. 7
2. a) Explain the parameters for analyzing network parameters. How packet switching differs from circuit switching. 8
   b) Differentiate between error detection and error correction. A bit string 01101111111001111101111111111100000 needs to be transmitted at the data link layer, what is string actually transmitted after bit stuffing, if flag patterns is 01111110? 7
3. a) Explain IPv4 header format. Differentiate between IPv4 and IPv6. 8
   b) Design an algorithm for CSMA/CD with a suitable example. 7
4. a) The APNIC Pool for Pokhara University (103.16.32.0/22) is to be divided into network of 7 different schools. Among 7 schools 3 schools need to be subdivided into 2 different departments. Provide a complete IP Address Plan which includes Network Address, Broadcast Address, Usable IP Pool, Subnet Mask and Wildcard Mask. 8
   b) Differentiate TCP and UDP with a suitable example. 7
5. a) Why congestion occurs in the network? Explain the types of closed loop congestion control mechanism. 8
   b) Define DHCP. Explain the iterative and recursive DNS query for name resolution with suitable figure. 7
6. a) What is SNMP? Explain the advantages of using network management tools. 8
   b) Explain the working principle of RSA algorithm. If N = 119, public key E=5, and private key D =77, then demonstrate how to send the character plain text F=6 using RSA. 2×5
7. Write short notes on: (**Any two**)
   a) Interior Routing Protocol
   b) Frame Relay
   c) DNS Server