POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2021
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) Define Intranet. Which network model is used for connecting devices within Office and why? Explain with neat diagram along with advantages and disadvantages. 8
   b) Define protocols and standards. Compare TCP/IP and OSI reference model. 7
2. a) Why do we use fiber optics for long distance communication? Explain fiber optics single mode of propagation? Describe about network performance bandwidth and latency. Write a command to check latency to server with IP 4.4.8.8 from your computer with Windows/Linux OS. 8
   b) Differentiate between Distance Vector Routing algorithm and Link State Routing algorithm with example. What are features of IPV6 protocol and provide one example of IPV6. 7
3. a) Define codeword. Explain with example how transmission error is detected and corrected using Hamming code. 7
   b) A company have 3 different departments with 65, 32 and 12 network devices. Explain how you will design network for this company from provided network of 10.10.100.0/24. Provide network address, broadcast address, subnet mask, wildcard mask and usable IP pool for each subnet. 8
4. a) Draw IEEE 802.3 Frame format. Explain random access protocol: ALOHA. 8
   b) What do you mean by Socket Programming? Explain TCP Client/Server Socket flow with suitable diagram. 7
5. a) In your opinion what are the main causes of congestion in network. Explain about closed-loop congestion control. 7
   b) Explain about DNS, its importance, name resolution iterated and recursive query with neat diagram. 8

6. a) What do you mean by symmetric and asymmetric key algorithm ? Explain RSA with suitable algorithm to perform Key generation for public key, private key, encryption and decryption. 8
   b) Differentiate between Switch and Hub. Explain exterior routing protocol. 7
7. Write short notes on: **(Any two)** 2×5
   a) Firewall
   b) DHCP
   c) Proxy Server