POKHARA ENGINEERING COLLEGE

Level: Bachelor   Semester – Spring   Year   : 2025

Programme: BE   Full Marks: 100

                                 Pass Marks: 45

Course: Computer Networks   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.

Assessment Examination.

1.
   a) Define Computer Network. Explain LAN, MAN and WAN in detail.   1+6

   b) Define protocols, interfaces and services. Discuss in brief about the layers in OSI model.   3+5

2.
   a) Differentiate between guided and unguided medium. List and explain different propagation techniques used in wireless communication.   2+5

   b) What do you understand by error control? Explain about different types of framing techniques used in Data link Layer.   2+6

3.
   a) Prepare CRC code for the bit sequences 101011 given the predetermined divisor x^4+x^2+1. Suppose, while transmitting the fourth bit from the left is inverted. Using CRC explain how can you detect and check error.   8

   b) Why is the world moving towards IPV6 addressing? Explain the working of OSPF routing protocol.   2+5

4.
   a) PU has four departments Software, Computer, Electronics and Bioinformatics which needs 80,50,30 and 12 computers. Design an IP plan Table for the given subnets using appropriate IP addresses.   8

   b) What is a Socket Addressing? Explain the header format of   1+6
TCP.

5.
   a) How can we control congestion in the network? Explain about Leaky Bucket algorithm in detail.   2+6

   b) Which ports do HTTP and HTTPs use to browse the internet? Explain the working of DHCP.   2+5

6.
   a) In RSA cryptosystem, A particular A uses two prime numbers 7 and 11 to generate the public and private keys. If the public key of A is 25 what is the private key for A?   8

   b) Define VPN. Explain different firewalls used in Computer Network.   1+6

7. Write short notes on (**Any Two**):   5*2
   a) Kerberos Protocol
   b) Router and Switch
   c) Hamming Code

**********************Best of Luck**************************