# PURBANCHAL UNIVERSITY
## 2018

Bachelor in Information Technology (B.I.T.)/Sixth Semester/*Final*
Time: 03:00 hrs. Full Marks: 80/Pass Marks: 32
**BIT373CO: Computer Network** *(New Course)*

*Candidates are required to give their answers in their own words as far as practicable.*

*Figure in the margin indicate full marks.*

**Group A**

**Answer TWO questions.** **2×12=24**

1(a) What is computer network? Explain different architectures used in computer network. 6

(b) What is layered architecture? Compare OSI-ISO model with TCP/IP model. 6

2(a) Why error occurs during transmission? Explain different types of errors with suitable examples. 5

(b) How do you detect error using CRC? Generate the CRC code for the data word 1101011011 The divisor is $x^4+x+1$. 7

3(a) What do you mean by encoding? Draw the following data formats for the bit stream 1100110 10. 6

(i) Polar NRZ (ii) Unipolar RZ

(iii) AMI (iv) Differential Manchester

(b) What do you mean by guided and uniguided media? Explain one example of each. 6

**Group B**

**Answer SEVEN questions.** **7×8=56**

4. What is the main purpose of ARQ in error control? Explain selective reject and GO-Back N error control. 2+6

5. What are the differences between Distance vector routing and Link state routing algorithm. Describe Dijkstra's Shortest path algorithm with suitable example. 4+4

6. Consider a network with IP address 192.168.10.1/26, now find, 8
   (a) Calculate the number of subnets and valid subnets.
   (b) What are the valid hosts per subnet?
   (c) Broadcast address?
   (d) Valid hosts in each subnet.

7(a) Compare and contrast IPV4 and IPV6. 4

(b) Explain shortest path routing algorithm. 4

8. What are connection oriented and connectionless networks? Mention the elements of transport layer. 3+5

9. What is Framing? Discuss all the framing methods used in Data link layer. 3+5

10. Discuss Leaky Bucket algorithm. A computer on a 6Mbps network is regulated by token bucket. Token bucket filled at a rate of 1Mbps. It is initially filled to a capacity with 8Mbps. How long can computer transmit at the full 6Mbps. 4+4

11. What is symmetric and asymmetric cryptography? Explain Digital Signature in detail. 4+4

12. What is HDLC? Discuss the frame format of HDLC. 3+5

13. Write short notes on any TWO: 2×4=8

(a) MAC
(b) VSAT
(c) VPN