**ORCHID INTERNATIONAL COLLEGE**

**Full Marks: 60**

**Time: 3 Hrs**

**SET A**

**Bijaychowk, Gaushala-9, Kathmandu**

Pre-Board Examination -2080

BIM / Fourth Semester / IT 240: Business Data Communication and Networking

***Candidates are required to answer the question in their own words as far as practicable.***

**Group "A" (Brief Answer Questions)**

**Attempt all the questions.: [10 × 1 = 10]**

1. How is LAN different from WAN?
2. Why is flow control necessary in data communications?
3. Which layer is responsible for name recognition and security?
4. Name two devices which function at the Physical Layer.
5. What is the information that is provided by a CIDR?
6. What is the purpose of Keep Alive Packet in BGP?
7. Define supernetting.
8. Explain any two Query messages in ICMP.
9. Define the process segmentation in the Transport Layer.
10. How can costs be reduced in network management?

**Group "B" (Short Answer Questions)**

**Attempt any FIVE questions: [5 × 3 = 15]**

1. Suppose you are given network address: 192.168.20.0 and subnet mask: 255.255.255.224 then calculate total number of subnets and numbers of hosts per subnet.
2. Explain TCP three way handshake process. Explain services provided by the transport layer.
3. How does Instant Messenger transmit Voice Data?
4. If a message to be transmitted is 1011001010 with a polynomial generator x3+1. Calculate the transmitted bits.
5. Explain the working principle of the Distance vector routing algorithm with an example.
6. How can we use the leaky-bucket algorithm to control congestion? Discuss.

**Group "C" (Long Answer Questions)**

**Attempt any THREE questions: [3 × 5 = 15]**

1. Explain IPV6 header format with suitable diagram.
2. How is Improving WAN Performance to be performed? Explain.
3. Explain Building-Block Network Design Process
4. Write short notes on:
   1. e-Commerce Edge
   2. Digital Subscriber Line

**Group "D" (Comprehensive Questions)**

#### Attempt all the questions. [2 × 10 = 20]

1. Explain the functioning of 7 layers of OSI model in detail with a diagram and briefly explain its significance in data communications.
2. Define flow control. Explain Go-Back-N ARQ with suitable examples. How is it different from Stop-and-Wait ARQ?

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**SET B**

**Bijaychowk, Gaushala-9, Kathmandu**

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**Time: 3 Hrs**

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**BIM / Fourth Semester / IT 240: Business Data Communication and Networking**

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**Group "A" (Brief Answer Questions)**

Attempt all the questions.: [10 × 1 = 10]

1. Mention the types of cables used in communication.
2. List sources of errors in data transmission.
3. Define Count to infinity problem.
4. Which layer is responsible for end to end reliable transmission?
5. What is the information that is provided by a subnet mask?
6. When a "source quench" and " Time exceeded" message are generated?
7. What are the advantages of IMAP over POP?
8. How can the attenuation problem be overcome in Digital Signal Transmission?
9. Why is Adaptive routing less secure compared to Non-Adaptive routing?
10. Mention different Internet access technologies.

**Group "B" (Short Answer Questions)**

**Attempt any FIVE questions: [5 × 3 = 15]**

1. Suppose you are given network address: 192.168.20.0 and subnet mask: 255.255.255.224 then calculate total number of subnets and numbers of hosts per subnet.
2. What is LAN? Explain LAN Components.
3. How Telephones transmit Voice Data? Explain.
4. What is VPN? How does it work? Explain.
5. If the message sequence is 11110110011 and the generator polynomial is G (x) = x2+1, calculate the transmitted frame.
6. How can we use the token-bucket algorithm to control congestion? Discuss.

**Group "C" (Long Answer Questions)**

**Attempt any two questions: [3 × 5 = 15]**

1. Explain IPV4 header format with suitable diagram.
2. What is VLAN? Explain Benefits of VLAN and how VLANs works?
3. What is Network Management? Explain Configuration Management process.
4. Write short notes on:
   1. SOHO environment
   2. FTTH

**Group "D" (Comprehensive Questions)**

#### Attempt all the questions. [2 × 10 = 20]

1. Explain each layer of TCP/IP model in detail. Compare it with the OSI model with a diagram. Also list protocols used in each layer in brief.
2. Why do we need a routing algorithm? Discuss distance vector routing algorithm in detail with examples.