

- NOTE: 1) Diagrams should be Neat and labeled.  
 2) All Questions are compulsory.  
 3) Right side indicates marks.

Q.1) Attempt any two. [10]

- A) Write short note on 1. DC 2. Analog and Digital signal.
- B) List components required for data communication .Explain It.
- C) What is composite signal? Explain with Fourier analysis concept.
- D) Explain key elements of protocols and Explain standards.

Q.2) Attempt any two. [10]

- A) Describe TCP/IP suit.
- B) Describe OSI model.
- C) Find First, Last, and No of address of given address  
 11001101 00010000 00100101 00100111 (n=28)
- D) What is IP address? Describe different types of classes in IP address.

Q.3) Attempt any two. [10]

- A) What is hamming distance for each of following code and also find out Minimum hamming distance.  
 1. d(10000,01000) 2. d(10101,10010) 3. d(1111,1111) 4. d(0000,0000)
- B) What is function of generator and checker in hamming code? Explain it.
- C) Describe JPEG process for video compression.
- D) What is one's compliment method in checksum? Explain with example.

Q.4) Attempt any two. [10]

- A) Why signals are not perfect during transmission? Explain its causes.
- B) What is purpose of cladding in an optical fiber? Explain it with diagram.
- C) Explain serial and parallel transmission modes.
- D) Explain scrambling in digital-digital Conversion.

Q.5) Attempt any two. [10]

- A) Define topology. Explain following topologies with advantages and disadvantages  
 1. Hybrid 2. RING 3. STAR
- B) What are two approaches required for packet switching? Explain it.
- C) Write short note on 1. message switching 2. Circuit switching
- D) Explain static and dynamic routing.

Q.6) Attempt any two. [10]

- A) Write short note on 1. Unicast 2. Multicast 3. Anycast
- B) How to transit IPV6 to IPV4? Explain its mechanism.
- C) Differentiate IPV4 and IPV6.
- D) Describe ipv6.

Q.7) Attempt any three.

[15]

- A) Describe bipolar method.
- B) What is error? Explain types of error.
- C) Differentiate guided and unguided media.
- D) Explain unipolar method.
- E) Explain AM, FM, PM.
- F) Describe unguided transmission media.