

**Duration: 3 Hours**

**Total Marks: 80**

- N.B. (1) Question one is Compulsory.**  
**(2) Attempt any 3 questions out of the remaining.**  
**(3) Assume suitable data if required.**
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**Q1 ATTEMPT ANY FOUR**

[A] Explain different network topologies. [05]

[B] Differentiate between TCP and UDP. [05]

[C] 4-bit data bits with binary value 1010 is to be encoded using even parity Hamming code. What is the binary value after encoding? [05]

[D] Explain IPv4 classful addressing and state its disadvantages. [05]

[E] Enlist and explain in brief different design issues in data link layer. [05]

**Q2 [A]** Explain OSI reference model and compare it with TCP/IP reference model. [10]

[B] Explain in brief Cisco PPDIIO network design methodology. [10]

**Q3 [A]** What is Channel Allocation problem? Explain CSMA/CD protocol in detail. [10]

[B] Explain IPv4 header format with a neat diagram. [10]

**Q4 [A]** A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is 1001. What is the actual bit transmitted? Suppose the third bit from left is inverted during transmission, how will the receiver detect this error? [10]

[B] Elaborate the architecture of NoX and PoX controller of SDN with their comparison. [10]

**Q5 [A]** Explain Distance Vector Routing algorithm with an example. [10]

[B] Explain three way handshaking technique in TCP [10]

**Q.6** Write a short note on:

[A] DNS [10]

[B] Sliding window protocols. [10]

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