CNS question bank

Unit 1

**Unit I: Introduction To Computer Networks**

Definition, **Types of Networks**: Local area networks (LAN), Metropolitan area networks (MAN),Wide area networks(WAN),Wireless networks, Networks Software, Protocol, Design issues for the Network layers.

**Network Models**: The OSI Reference Model, TCP/IP Model, Network Topologies, Types of Transmission Medium. **Network Architectures**: Client-Server, Peer To Peer, Hybrid.

**Network Devices**: Bridge, Switch, Router, Gateway, Access Point.

**Line Coding Schemes**: Manchester and Differential Manchester Encodings, Frequency Hopping (FHSS) and Direct Sequence Spread Spectrum (DSSS).

| Sr No | Question | Marks |
| --- | --- | --- |
| 1 | Draw TCP/IP Reference model and write function of each layer | 6 |
| 2 | What are different types of topologies? Compare and explain any one of them | 4 |
| 3 | Differentiate between TCP/Ip and ISO/OSI reference model | 4 |
| 4 | Explain different types of transmission mediums used in communication systems. | 6 |
| 5 | Explain in brief DHSS and FHSS | 6 |
| 6 | Draw different network architectures. explain any one of them with applications. | 6 |
| 7 | Explain LAN, MAN, WAN and PAN | 8 |
| 8 | Explain OSI Model | 8 |
| 9 | Explain Client Server and Peer to Peer Network | 8 |
| 10 | Explain Bridge, Switch, Router, Access point, Gateway | 8 |
| 11 | Give short note on Distributed and Software defined Networks | 8 |
| 12 | What are design issues of layers? Explain it. | 6 |
| 13 | Draw Manchester and differential Manchester code for the bit sequence: 100101011 | 6 |

Unit 2:

**Unit II: Data Link Layer**

Introduction,functions.**DesignIssues**:ServicestoNetworkLayer,Framing.**ARQstrategies**:Errordetectionandcorrection,ParityBits,HammingCodes(11/12-bits)andCRC. **FlowControlProtocols**:UnrestrictedSimplex,StopandWait,SlidingWindowProtocol.

**WAN Connectivity**: PPP and HDLC.

**MAC Sub layer**: Multiple Access Protocols: Pure and Slotted ALOHA, CSMA, WDMA, CSMA/CD, CSMA/CA, Binary Exponential Back off algorithm, Introduction to Ethernet IEEE802.3, IEEE802.11a/b/g/n, IEEE802.15 and IEEE802.16

Standards.

| Sr No | Question | Marks |
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| 1 | Justify answer using CRC for divisor: 1101 dividend: 100100 | 6 |
| 2 | What is Hamming code? Explain with example 1001101 | 6 |
| 3 | Explain IEEE 802.3 frame format | 6 |
| 4 | Give brief about design issues in DLL | 6 |
| 5 | Differentiate between Pure and Slotted ALOHA | 6 |
| 6 | What is CRC? Explain with example | 6 |
| 7 | What is the sliding window protocol? How does it work? | 6 |
| 8 | Explain CSMA in detail | 6 |
| 9 | Give brief about HDLC Protocol | 6 |
| 10 | Differentiate between Fast and Gigabit Ethernet | 6 |
| 11 | What are Framing, Error control and Flow control? | 6 |
| 12 | Give short note on CSMA/CA, CSMA/CD | 6 |
| 13 | Explain PPP | 6 |
| 14 | Explain Stop and Wait Protocol | 5 |