



**V Semester B.E. (CSE/ISE) Examination, December 2018/January 2019**  
**(2K11 Scheme)**  
**CI 53 : COMPUTER NETWORKS – I**

Time : 3 Hours

Max. Marks : 100

**Instruction :** Answer **any five** questions choosing at least **any two** from **each Part**.

**PART – A**

1. a) Explain OSI model with a neat diagram. Discuss the need for layered architecture. 10  
b) We have a channel with 5 kHz bandwidth. If we want to send data at 150 kbps. What is the minimum  $SNR_{dB}$  ? What is SNR ? 6  
c) What are the various Digital-to-Digital conversion techniques ? 4
2. a) Discuss the characteristics of various guided media. 8  
b) Encode the following 01001100 using manchester, differential Manchester, AML and pseudoternary. 6  
c) Explain PCM technique with a neat diagram. 6
3. a) Explain synchronous Time-Division multiplexing technique. Discuss how it handles different data rate input lines. 10  
b) What is the significance of Hamming distance in error detection ? Explain with an example how hamming code is used to detect and correct errors. 10
4. a) Explain HDLC frame format with a neat diagram. 6  
b) With a neat diagram explain stop and wait ARQ protocol. 6  
c) Write the flow chart and explain CSMA/CD protocol. 8

**PART – B**

5. a) Explain the behaviour of three persistence methods of CSMA protocol. 10  
b) Explain the different channelization methods. 10

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6. a) Explain the frame format of IEEE 802.3. What is its minimum and maximum frame lengths ? 10
- b) Explain the architecture of IEEE 802.11. Discuss with a neat diagram, the MAC layers of the same. 10
7. a) Explain the steps involved in making mobile call from one station to another mobile station. 6
- b) Bring out the differences between 2G and 3G. 6
- c) Explain transparent bridges used in data link layer. 8
8. Write short notes on : (4×5=20)
- i) Network topology.
  - ii) Spread spectrum.
  - iii) Dynamic routing.
  - iv) Backbone networks.