

**Exam. Code : 105705**

**Subject Code : 1577**

**B.Sc. (IT) Semester—V**

**COMPUTER NETWORKS**

**Paper—I**

**Time Allowed—3 Hours] [Maximum Marks—100**

**Note :—Attempt any FIVE questions. All questions carry equal marks.**

1. (a) What is network ? What are the advantages of using networks ?
- (b) Explain the following :
  - (i) Client-Server concept
  - (ii) Router and Bridges. 14,6
2. What are the various layers in TCP/IP reference model ? Explain the need for each of them. 20
3. (a) Discuss various network topologies by giving their advantages and disadvantages.
- (b) What is the difference between the following :
  - (i) Analog and Digital transmission
  - (ii) Baseband and Broadband transmission. 15,5

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(Contd.)

4. (a) Write a short note on Multiplexing.  
(b) Discuss various types of switching. 6,14
5. (a) Compare and contrast Fiber optical cable and copper wire. What are the limitations of fiber optical cable ?  
(b) Write briefly on wireless transmission. 12,8
6. (a) Write briefly on the various design issues of data link layer.  
(b) What is the advantage of using sliding window protocols ? Explain any one sliding window protocol. 10,10
7. What are the desirable characteristics of a routing algorithm ? Explain the shortest path routing algorithm with suitable illustration. 20
8. Write short notes on the following :
  - (i) Internetworking
  - (ii) Network Security
  - (iii) Error Detection and Correction. 5,5,10