

(3 Hours)

[Total Marks : 80

Computer Network

1. Question No 1 is compulsory.
2. Attempt any three out of the remaining five questions.

- Q1. (a) Discuss the design issues for various layers 05  
 (b) Compare various types of network topologies 05  
 (c) Differentiate between an IP address and a MAC or physical address. What is the need to map IP address to MAC address? Explain which protocol does this. Similarly give a protocol which does reverse mapping. 05  
 (d) What is subnetting? What are the default subnet masks? Find the subnet address if the IP address is 129.31.72.24 and subnet mask is 255.255.192.0. 05
- Q2. (a) What is controlled access for collision control? Explain all the methods of controlled access. 10  
 Q2. (b) What is the maximum window size allowed for selective repeat? Explain why with appropriate scenario. 10
- Q3. (a) What are the different types of routing algorithms? When would we prefer to use hierarchical routing over Link state routing? 10  
 Q3. (b) What is traffic shaping? Explain leaky bucket algorithm and compare it with token bucket algorithm. 10
- Q4. (a) What are transport service primitives? Discuss in brief 10  
 (b) Explain IPv4 header format in detail. If value of HLEN field is 1101 find the size of option and padding field? 10
- Q5 (a) What is congestion control? Explain various congestion prevention policies. 10  
 Q5 (b) Write in brief about:  
 i) PPP Frame format 10  
 ii) CSMA/CD
- Q6. Write short notes on: (any two) 20  
 i) TCP connection management  
 ii) Internetworking Devices  
 iii) Border Gateway Protocol