

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

- Q1. (a) Briefly explain the concept of additive increase/multiplicative decrease mechanism of TCP. **05**
- (b) Identify the various issues associated with resource allocation? **05**
- (c) What are the deciding parameters for OSPF routers to become neighbours? **05**
- (d) Explain with examples multicast, unicast and anycast addresses in IPV6. **05**
- Q2. (a) An autonomous university currently has 4 departments of engineering housed in one building with five floors, one floor dedicated to each branch, and a server room, office and central computing facility on the first floor. Two additional programmes viz, Pharmacy and MCA have been approved for the university, which would be housed in a separate building 1 km away. The laboratory structure of each floor in the new buildings would be similar. The university has been granted the IP address 220.57.24.0 via a 10 Mbps leased line. Design subnets so that each building is assigned a different subnet. Private IP addressing can be used for providing logical separation between the different departments. Give the design details for the backbone layer, distribution layer and access layer of the campus network. Include the details for IP-addressing in your design. **12**
- Q2. (b) Discuss best practices of campus area network design **08**
- Q3. (a) What is VPN? How does the IPSec protocol help to setup a VPN? **10**
- Q3. (b) Explain in detail the resource allocation model of TCP. How does the router centric design differ from the host-centric one? **10**
- Q4. (a) Explain the differences between the source initiated and receiver initiated MAC protocols by giving examples. **10**
- Q4. (b) Explain the exposed terminal problem with an example. What are the effects of exposed terminal problem in ad-hoc wireless networks? How is it handled? **10**
- Q5. (a) What are the objectives of an effective WAN design? Describe the different WAN Transport Technologies. **10**
- Q5. (b) Discuss the functions of the data center access layer and aggregation layer. **10**
- Q6. Write short notes on: (any two): **20**
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| i) WLAN Design             | iii) Virtualization technologies |
| ii) Fair queuing mechanism | iv) Software Defined Networking  |
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