



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :** Advanced Computer Networks ( 16CS5802 ) **Course & Branch:** M.Tech - CSE

**Year & Sem:** M.Tech. & I-Sem

**Regulation:** R16

**UNIT –I**

**Review Computer Networks and the Internet**

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 1 a) Compare the TCP/IP model with that of the OSI reference model                                                                                                                            | 5M |
| b) What are ISPs? Explain them in detail.                                                                                                                                                     | 5M |
| 2 a) Describe the different categories of physical media.                                                                                                                                     | 5M |
| b) Explain briefly about the equal sized packet model ATM and its layers                                                                                                                      | 5M |
| 3 a) What are the Networking devices? Explain them briefly.                                                                                                                                   | 5M |
| b) Explain in brief about the history of computer networking and the Internet.                                                                                                                | 5M |
| 4 a) Describe in detail about the Network Edge.                                                                                                                                               | 5M |
| b) What is Network Core? Explain in brief.                                                                                                                                                    | 5M |
| 5 a) Describe about Access Networks and Physical media.                                                                                                                                       | 5M |
| b) Differentiate 5 Layer TCP/IP model and 7 Layer OSI model.                                                                                                                                  | 5M |
| 6 a) What are the Internet Protocols? Explain in brief.                                                                                                                                       | 5M |
| b) Explain in brief about Addressing in Internet.                                                                                                                                             | 5M |
| 7 a) Describe in detail about Equal sized packet model.                                                                                                                                       | 5M |
| b) Explain about ISPs and Internet Backbones.                                                                                                                                                 | 5M |
| 8 a) Draw and explain about IP Packet format in IPv4                                                                                                                                          | 5M |
| b) Describe in brief about IPv6.                                                                                                                                                              | 5M |
| 9 a) What is ATM Protocol Structure? Explain with neat sketch.                                                                                                                                | 5M |
| b) Explain in briefly about ATM Cell Structure.                                                                                                                                               | 5M |
| 10 a) Describe in brief about CIDR                                                                                                                                                            | 5M |
| b) Suppose that a host application needs to transmit a packet of 3500 bytes. The physical layer has a MTU of 1500 bytes. The Packet has an IP header of 20 bytes plus another attached header |    |

of 20 bytes. Fragment the packet, and specify the ID, MF and offset fields of all fragments. 5M

## UNIT –II

### Routing and Internetworking

- 1 a) Explain the Non least cost path algorithm. 5M  
b) What is multicasting? Explain the PIM in detail. 5M
- 2 a) What is Congestion? Discuss briefly about the congestion control at the network layer. 5M  
b) Explain in detail about the Node level multicast algorithm. 5M
- 3 a) Describe in detail about the Network Layer Routing. 5M  
b) Explain the Least cost path algorithm. 5M
- 4 a) Discuss briefly about the Intradomain routing protocols. 5M  
b) Explain the BGP Protocol. 5M
- 5 a) Describe about OSPF protocol 5M  
b) Explain in detail about Congestion control at the Network layer. 5M
- 6 a) What are the Inter domain routing protocols? Explain. 5M  
b) Discuss in briefly about Logical addressing. 5M
- 7 a) Explain the IPv4 Addressing. 5M  
b) Discuss about transition from IPv4 to IPv6. 5M
- 8 a) Differentiate IPv4 and IPv6. 5M  
b) What is Classful addressing in IPv4? Explain. 5M
- 9 a) Describe about RED. 4M  
b) Explain the Intra domain Multicast protocols. 6M
- 10 a) Discuss in briefly about Inter domain Multicast Protocols. 5M  
b) Explain the Tree based Multicast Algorithm. 5M

**UNIT -III****Wireless Networks and Mobile IP**

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|-----------------------------------------------------------------------|----|
| 1 a) Explain the infrastructure of the Wireless networks in detail.   | 5M |
| b) What are the three main pieces of the Mobile IP standard? Explain. | 5M |
| 2 a) Explain the IEEE 802.11 standards.                               | 5M |
| b) What is Mobile IP? Explain in detail.                              | 5M |
| 3 a) Discuss briefly about Wireless LAN Technologies.                 | 5M |
| b) Explain the 802.11 MAC layer.                                      | 5M |
| 4 a) What are the Cellular Networks? Explain in detail.               | 6M |
| b) Explain Mobile IP routing with a neat sketch.                      | 4M |
| 5 a) Discuss about WiFi technology and 802.11                         | 5M |
| b) Describe about WiMAX technology and IEEE 802.16                    | 5M |
| 6 a) What are the applications of Wireless Mesh Networks? discuss.    | 5M |
| b) Explain the Physical and MAC layers of WMNs.                       | 5M |
| 7 a) What are the VPNs? Explain in brief.                             | 5M |
| b) Discuss about MPLS packet format and operation.                    | 5M |
| 8 a) What is Tunneling and Point to Point Protocol(PPP)? Explain.     | 5M |
| b) Explain Routing in MPLS domains and Traffic Engineering.           | 5M |
| 9 a) Discuss in briefly about VoIP and Multimedia Networking.         | 6M |
| b) What are the Overlay Networks? Explain.                            | 4M |
| 10 a) Discuss about VoIP signaling protocols.                         | 5M |
| b) What is SCTP? Draw and explain SCTP packet structure.              | 5M |

**UNIT –IV****Transport and End to End Protocols**

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|----------------------------------------------------------------------------|----|
| 1 a) Whether TCP is reliable or unreliable protocol. Justify your answer.  | 5M |
| b) Explain the importance of DNS in network communication.                 | 5M |
| 2 a) Discuss briefly about the File Transfer Protocol.                     | 5M |
| b) What is the need of DNS? Explain in detail about the Domain Name Server | 5M |
| 3 a) Describe in detail about TCP.                                         | 5M |
| b) Compare TCP and UDP.                                                    | 5M |
| 4 a) Explain in detail about User Datagram Protocol.                       | 5M |
| b) What are the Mobile Transport Protocols? Explain.                       | 5M |
| 5 a) Draw and explain TCP Segment format.                                  | 5M |
| b) Discuss in detail about TCP congestion control.                         | 5M |
| 6 a) Explain about Slow start method and fast retransmit methods.          | 5M |
| b) What are the TCP congestion avoidance methods? Explain.                 | 5M |
| 7 a) Discuss in brief about the web and HTTP.                              | 5M |
| b) Explain Remote Login Protocols.                                         | 5M |
| 8 a) What is E-mail? Explain.                                              | 5M |
| b) Discuss about FTP?                                                      | 5M |
| 9 a) What is P2P file sharing? Explain.                                    | 4M |
| b) Discuss about socket programming with TCP.                              | 6M |
| 10 a) Explain about socket programming with TCP and UDP.                   | 6M |
| b) How to build a simple web server? Discuss.                              | 4M |

**UNIT -IV****Mobile Ad-hoc networks**

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|---------------------------------------------------------------------------------------------|----|
| 1 a) Describe various routing protocols in Ad-Hoc networks.                                 | 5M |
| b) Discuss about the Clustering protocols in wireless sensor networks.                      | 5M |
| 2 a) What are the wireless sensor networks? Explain the inter clustering routing Protocols. | 5M |
| b) Give the brief discussion about the DSDV protocol.                                       | 5M |
| 3 a) Explain about the Routing in Ad-hoc networks.                                          | 5M |
| b) Describe about Sensor networks and protocol structures.                                  | 5M |
| 4 a) Discuss about Wireless Routing Protocol.                                               | 5M |
| b) Explain in detail about Sensor node structure.                                           | 5M |
| 5 a) What is CGSR Protocol? Explain about DSR protocol.                                     | 5M |
| b) Discuss about Communication Energy Model in Wireless sensor networks.                    | 5M |
| 6 a) Explain about Ad-Hoc On Demand Distance Vector Protocol.                               | 5M |
| b) Describe DEEP clustering protocol in Sensor networks.                                    | 5M |
| 7 a) What are the TORA and ABR ? Explain.                                                   | 5M |
| b) Discuss about LEACH clustering protocol in sensor networks.                              | 5M |
| 8 a) Explain the overview of wireless Ad-hoc networks.                                      | 4M |
| b) Describe about Routing protocols in sensor networks.                                     | 8M |
| 9 a) Classify routing protocols for Ad-hoc networks? Explain any two.                       | 5M |
| b) What is Reclustering? Explain Intracluster routing protocols in sensor networks          | 5M |
| 10 a) Discuss about Security of Ad-hoc networks.                                            | 5M |
| b) What is Intercluster routing in sensor networks ? Explain.                               | 5M |

**Prepared by: P. Ramesh babu, Associate Professor, CSE Department.**