

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BE
BRANCH: ECE**

**SEMESTE: VI/ADD
SESSION: SP/19**

SUBJECT: EC6205 COMPUTER NETWORKING

TIME: 3 Hours

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Compare the advantages and disadvantages of ring and star topology. [2]
Q.1(b) What is the drawback of CSMA? How does it overcome in CSMA/CD? Explain the CSMA/CD technique for a baseband bus. [4]
Q.1(c) Explain the operation of FDDI Token ring. Show how FDDI capacity allocation scheme accommodates synchronous traffic. [6]
- Q.2(a) Distinguish between transparent bridge and source routing bridge. [2]
Q.2(b) What are the characteristics of backbone network? Explain the topologies of Bus backbone and Star backbone networks. [4]
Q.2(c) What is the difference between an access point and a portal in wireless LAN architecture? Explain the priority based access method of DCF sublayer of IEEE 802.11 wireless LAN using different values of FS. [6]
- Q.3(a) What is datagram lifetime in IP-controlled internet? What are the ways to implement it? [2]
Q.3(b) A class B network on internet has a subnet mask of 255.255.224.0. What will be the maximum number of hosts per subnet? [4]
Q.3(c) What are the features enhanced in IPv6 over IPv4? Compare the header formats of IPv6 and IPv4. What are the different types of addresses used in IPv6? [6]
- Q.4(a) Distinguish between elastic traffic and inelastic traffic in internet. [2]
Q.4(b) What are the drawbacks of distance vector routing? How are those overcome in link state routing? Explain the formation of shortest path tree in link state routing. [4]
Q.4(c) What are the problems with Integrated Services Architecture (ISA) to support QoS in the internet? What changes are made to solve those problems in Differentiated Services? Explain the traffic conditioning process in Differentiated Services. [6]
- Q.5(a) What facilities does TCP provide for labeling data? [2]
Q.5(b) What are the demerits of two way handshake for connection establishment in transport protocol? Show how the three way handshake overcomes the problem of delayed SYN, ACK. [4]
Q.5(c) Explain the 'Slow Start' window management technique for congestion control in TCP. What is its disadvantage? How can it be solved by 'dynamic window sizing'? [6]
- Q.6(a) What are the four categories of active attacks in network security? [2]
Q.6(b) Distinguish between session key and permanent key in symmetric encryption. Explain the automated key distribution approach of symmetric encryption for connection oriented protocol. [4]
Q.6(c) Perform encryption and decryption using RSA algorithm for the following: [6]
Prime numbers $p=11$, $q=13$, public key $e=11$, plain text $M=7$.
- Q.7(a) Compare SMTP with MIME. [2]
Q.7(b) Explain the following elements in a network management system: i) SNMP, ii) Management Information Base (MIB), & iv) Structure of Management Information (SMI). [4]
Q.7(c) How HTTP is related to WWW? Illustrate the HTTP transaction between the client and server, and explain the formats of messages involved. [6]

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