

**ANNA UNIVERSITY COIMBATORE**  
**B.E. / B.TECH. DEGREE EXAMINATIONS : MAY / JUNE 2010**  
**REGULATIONS : 2007**  
**SIXTH SEMESTER**  
**070230039 - COMPUTER NETWORKS**  
**(COMMON TO CSE / IT)**

**TIME : 3 Hours**

**Max.Marks : 100**

**PART – A**

**(20 x 2 = 40 MARKS)**

**ANSWER ALL QUESTIONS**

1. Assume 6 devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?
2. What are header and trailers and how do they get added and removed?
3. What is the role of application layer
4. How are the guided media differing from unguided transmission media?
5. List the steps followed in checksum generator?
6. What is the purpose of hamming code?
7. Mention the categories of flow control.
8. Give the different communication modes in HDLC?
9. Define a virtual circuit
10. What is time-to-live or packet lifetime?
11. List the rules of boundary-level masking?
12. What is LSP?
13. The transport layer creates the connection between source and destination. What are the three events involved in the connection?
14. Differentiate service point address, logical address and physical address?
15. What are the networks related attributes?
16. List the features of WiFi

17. List the purpose of the use of firewall
18. Why is an application such as POP needed for electronic messaging?
19. Name four factors needed for a secure network.
20. What are the advantages & disadvantages of secret key encryption?

**PART – B**

**(5 x 12 = 60 MARKS)**

**ANSWER ANY FIVE QUESTIONS**

21. a. Devise an algorithm that illustrates the steps involved in establishing dialogue control in the session layer of OSI models 8  
b. Analyze the issues present in presentation layer of OSI model with respect to syntax and semantics. Trace the impact of these issues in a networking application. 4
22. A bit stream 11011001 is transmitted using the standard CRC method. The generator polynomial is  $x^3+9$ . Show the actual bit string transmitted, suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end.
23. a. Discuss the elements present in SONET header. And their purpose. 6  
b. Show how collision avoidance is enabled in Ethernet Network. 6
24. An IP datagram has arrived with the following information in the header (in hexadecimal):  

45 00 00 54 00 03 00 00 20 06 00 00 7C 4E 03 02 B4 0E 0F 02.

  - i) Are there any options? If so, name them.
  - ii) Is the packet fragmented? If so, give the offset value.
  - iii) Is a checksum used? If so, mention it.
  - iv) Calculate the size of the payload.

25. a. Draw a flowchart of the steps involved when a router receives a distance vector message from a neighbor. 6
- b. Explain the presence of 3 node instability in distance vector algorithm with the help of a network that contains 5 nodes. Trace all the intermediate steps involved in solving the same. 6
26. a. A window holds bytes numbered from 2001 to 5000. The next byte to be sent is 3001. Draw a timeline diagram to narrate the sequences involved in this window operation, assuming the presence of the following two events. 8
- i) An ACK segment with the acknowledgment number 2500 and window size advertisement 4000 is received.
- ii) A segment carrying 1000 bytes is sent.
- b. A TFTP server residing on a host with IP address 122.45.12.7 sends a message to a TFTP client residing on a host with IP address 200.112.45.90. Identify the pair of sockets used in this communication. 4
27. Draw a timeline diagram that depicts the commands and response codes involved in transmitting an ASCII file from an FTP server to an FTP client in compressed mode. 4
28. Mention the fields present in DNS request / response headers. Show how hierarchically the information is organized in today's Internet environment through DNS. 4

\*\*\*\*\*THE END\*\*\*\*\*