

AMIETE – IT (OLD SCHEME)

Time: 3 Hours

JUNE 2012

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. Network address prefixed by 1110 is a

- (A) Class A address (B) Multicast address
(C) Class B address (D) Reserve address.

b. Computer networks are often called _____

- (A) packet networks (B) switching networks
(C) stuffing networks (D) None of these

c. _____ uses the greatest number of layers in the OSI model?

- (A) Bridge (B) Repeater
(C) Router (D) Gateway

d. Coaxial cable is suitable for use in _____ topology

- (A) Bus (B) Ring
(C) Star (D) None of these

e. The mapping of the IP address to the corresponding Ethernet Address is done by a protocol named as _____

- (A) SNMP (B) FTP
(C) TCP (D) ARP

f. What kind of paradigm are used by the application layer protocols?

- (A) Client-Server (B) Master-Slave
(C) Client-Client (D) None of these

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- g. The art of breaking ciphers is called _____
- (A) Cryptography (B) Cryptanalysis
(C) Coding (D) None of these
- h. Each hardware technology specifies the maximum amount of data that a frame can carry. This is called the _____.
- (A) Packet (B) MTU
(C) Byte (D) data stuffing
- i. Which of the following is/are characteristics of UDP?
- (A) End to end (B) Connection-oriented
(C) Message-oriented (D) All of these
- j. COM stands for _____
- (A) Component Object Model (B) Component Oriented Model
(C) Client Object model (D) Client Oriented Model

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Differentiate between a Bus and a Ring topology. (4)
- b. What are the key benefits of layered network? Briefly write functionalities of different OSI layers? (8)
- c. Compare between a switch and a hub. (4)
- Q.3** a. What is meant by fragmentation? What fields of an IP datagram are related to fragmentation? (7)
- b. What is the purpose of dotted decimal representation? Differentiate between various classes of IP address format. Give dotted decimal representation of the IP address 11011101 10001111 11111101 00001111. (9)
- Q.4** a. Write a note on IPv4 and IPv6 headers. (6)
- b. What was the need for designing ICMP as a companion protocol to IP? Discuss two broad categories of ICMP messages and also draw their frame formats. (10)
- Q.5** a. Discuss general characteristics of Client and Server software in most instances of client-server interaction. How a client and a server communicate across an internet. (8)

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- b. Which TCP/IP protocol supports electronic mail? Explain. (4)
- c. What is TELNET? What are three basic services provided by TELNET? (4)
- Q. 6** a. What is DNS? Explain DNS server hierarchy and name resolution. (7)
- b. Differentiate between Private and Public Internet connections. How can an organization's intranet be devised that has the advantage of confidentiality as well as the advantage of low cost? How it is implemented? Discuss. (9)
- Q.7** a. Using a diagram, discuss conceptual organization of a web-browser. (5)
- b. What are different categories of web documents according to the time at which the document contents are determined? Briefly describe each. (6)
- c. What do you mean by EDI? Explain its objective. (5)
- Q.8** a. What do you mean by state information? How state information is passed to a browser? How long term and short term state information is passed to a CGI Script? Illustrate the concept using a small CGI program. (10)
- b. Discuss benefits of WAP to Operators, Content-providers and End users. (6)
- Q.9** Write notes on the following (any **FOUR**)
- (i) Message Digests
 - (ii) Detecting errors with CRC
 - (iii) General and Ethernet frame format
 - (iv) WAP Architecture
 - (v) CORBA
- (4×4)**