

AMIETE – CS/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 best alternative in the following: (2×10)

- a. Which protocol working at the Transport layer provides a connectionless service between hosts?
- (A) IP (B) TCP
(C) ARP (D) UDP
- b. Two or more computers connected so that they can communicate with each other and share information is called a.
- (A) Network (B) Satellite
(C) Broadcast (D) Protocol
- c. In OSI network architecture, the dialogue control and token management are responsibility of
- (A) Network Layer (B) Transport Layer
(C) Session Layer (D) Data Link Layer
- d. Which of the following communication modes support two-way traffic but in only one direction
- (A) Simplex (B) Half Duplex
(C) Full Duplex (D) Three Quarter Duplex
- e. A Router
- (A) determines on which outgoing link a packet is to be forwarded.
(B) forwards a packet to all outgoing links.
(C) forwards a packet to the next free outgoing link
(D) forwards a packet to all outgoing links, except the link upon which the packet originated

- f. Manchester Encoding is primarily used to
- (A) ensure that the line remains unbalanced.
 - (B) increase the bandwidth of a signal transmitted on the medium.
 - (C) ensure that a transition occurs in the centre of each bit period
 - (D) have more than one symbol per bit period.
- g. The Internet is an example of
- (A) Circuit Switched Network
 - (B) Packet Switched Network
 - (C) Cell Switched Network
 - (D) None of the above
- h. The loss in signal power as light travels down the fiber is called
- (A) Propagation
 - (B) Scattering
 - (C) Interruption
 - (D) Attenuation
- i. The process of converting analog signals into digital signals so they can be processed by a receiving computer is referred to as:
- (A) Modulation
 - (B) Demodulation
 - (C) Synchronizing
 - (D) Digitizing
- j. Which of the following connection methods would not be used to connect devices between two different offices?
- (A) Twisted Pair
 - (B) Fibre Optics
 - (C) Coaxial Cable
 - (D) Infrared

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

- Q.2** a. Explain with the help of a diagram the layered architecture of OSI reference model. (8)
- b. Discuss signaling and traffic control in telephone network. (8)
- Q.3** a. Explain error detection and correction mechanisms. Discuss Cyclic Redundancy Check Code in detail with suitable example. (8)
- b. Describe various types of unguided transmission media for data communication. (8)
- Q.4** a. Explain working of point to point protocol. Mention the features of Password Authentication Protocol (PAP) and Challenge-Handshake Authentication Protocol (CHAP) in PPP Protocol. (8)
- b. Explain how ARQ can be used for error correction? How does Go back N ARQ differ from selective repeat ARQ. (8)

- Q.5** a. Explain FDDI and its frame structure with the help of a suitable diagram. (8)
- b. Compare the scheduling approaches in medium access control. (4)
- c. Give the CSMA-CD equations for
- (i) Maximum throughput
 - (ii) Maximum probability of successful transmissions. (4)
- Q.6** a. Discuss any two shortest path routing protocols. Why adaptive routing techniques are superior than non adaptive routing techniques. (8)
- b. Compare virtual circuit and datagram packet switching. (8)
- Q.7** a. Describe any two internet routing protocols in detail (8)
- b. What are the major differences between IPv4 and IPv6? Discuss header format and Network addressing with reference to IPv6. (8)
- Q.8** a. Discuss the Real time transport protocol and its architecture in detail. (8)
- b. How does ATM differ from frame relay? List and briefly define the ATM service categories. (8)
- Q.9** Write Short Note on the following:
- (i) SONET Multiplexing
 - (ii) B-ISDN Reference Model
 - (iii) Multiprotocol Label Switching
 - (iv) HDLC Data Link Control (4×4)