AMIETE – ET (OLD SCHEME)

Code: AE28 **JUNE 2009** **Subject: COMPUTER NETWORKS**
Time: 3 Hours **Max. Marks: 100**

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.**
- **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: (2x10)

a. Service point addressing is used in

(A) Presentation Layer **(B)** Session Layer
(C) Transport Layer **(D)** Physical Layer

b. The network that provides multiple paths for each source-destination pair is used to work efficiently in

(A) Deflection Routing **(B)** Shortest path Routing
(C) Centralized Routing **(D)** Dynamic Routing

c. Link control protocol and Network control protocol is a feature of

(A) Peer-to-Peer protocol **(B)** Point-to-Point protocol
(C) MAC Protocol **(D)** HDLC protocol

d. Forward error control and retransmissions are used in ATM networks. They are used in

(A) Physical medium dependent Sublayer
(B) Common Part Convergence Sublayer
(C) Transmission Convergence Sublayer
(D) Service Specific Convergence Sublayer

e. In routing algorithms, cost is a metric for using a link. Cost is proportional to capacity, packet delay and congestion as

(A) Inversely, inversely, directly
(B) Inversely, directly, inversely
(C) Inversely, inversely, inversely
(D) Inversely, directly, directly

f. The length of address field in IPv6 is

(A) 64 bits **(B)** 128 bits
(C) 48 bits **(D)** 256 bits

g. When the useful bandwidth of transmission medium exceeds the required bandwidth of signals to be transmitted the following technique is used

(A) FDM **(B)** FDMA
(C) TDM **(D)** TDMA

h. If a station can determine whether a collision is taking place, then the amount of wasted bandwidth can be reduced by aborting the transmission when a collision is detected, this principle is used in

(A) CSMA-CA **(B)** CSMA-non persistent
(C) CSMA-CD **(D)** CSMA-n persistent

i. Examples of interior gateway protocols are

(A) IGMP and BGP **(B)** BGP and OSPF
(C) DVMRP and RIP **(D)** RIP and OSPF

j. The following is application layer control protocol that can be used to establish, modify and terminate multimedia sessions or calls with one/more participants

(A) Session Announcement Protocol
(B) Session Initiation Protocol
(C) Session Description Protocol
(D) Session Conference Protocol

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

Q.2 a. Give overview of TCP/IP architecture. Draw TCP/IP network architecture and TCP/IP protocol graph. **(8)**

b. Explain the following application layer protocols:
(i) HTTP
(ii) PING **(8)**

Q.3 a. Explain the functionality of **(8)**
(i) Synchronous TDM
(ii) Statistical TDM

b. Explain the difference between DSL and ADSL and their relevant features. **(8)**

Q.4 a. Explain the following scheduling approaches used in Medium Access Control Protocols:
(i) Reservation Systems.
(ii) Polling.
(iii) Token Passing Ring (single token, multitoken) **(9)**

b. Explain various timers used in FDDI. **(4)**

c. Give the frame structure of IEEE 802.11. **(3)**

Q.5 a. Briefly explain the various fields in IPv4 and IPv6 frame formats. **(8)**

b. Explain the following routing protocols **(8)**
(i) RIP
(ii) OSPF

Q.6 a. Explain the BISDN reference model. **(10)**

b. Explain the following parameters in HDLC:
(i) Configurations
(ii) Frame Format **(6)**

Q.7 a. Explain the design issues of a IP controlled internet. **(7)**

b. Explain any three Quality of Service (QoS) network performance parameters defined in ATM standards. **(9)**

Q.8 a. Explain the following Switching Techniques **(8)**
(i) Datagram approach
(ii) Virtual circuit approach

b. A routing algorithm should have global knowledge about the state of the network to perform its task. Give various goals and objective to be considered in routing algorithms. **(8)**

Q.9 a. Explain the following types of attacks on network security:
(i) Passive Attack
(ii) Active Attack **(8)**

b. Explain RSVP along with the diagram of its architecture. **(8)**