AMIETE – ET (OLD SCHEME)

Code: AE28   **Subject: COMPUTER NETWORKS**
Time: 3 Hours   JUNE 2010   **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 the best alternative in the following:**   (2×10)

a. As data packets move from lower to upper layers, headers are

   (A) removed   **(B)** added
   (C) rearranged   **(D)** modified

b.   The Reverse Address Resolution Protocol (RARP) allows a host to discover its internet address when it knows only its _____ address. It is used when a computer is connected to a network for the first time or when a diskless computer is booted.

   (A) Ephemeral   **(B)** Logical
   (C) Physical   **(D)** Port

c. PNNI routing is used in

   (A) CDMA and GSM Network.
   (B) Frame relay networks.
   (C) X.25 networks.
   (D) ATM networks.

d. In network security, Authentication Header (AH) and Encapsulating Security Payload (ESP) of IPSecurity supports:

   (A) Transport mode, encapsule mode.
   (B) Transport mode, session mode.
   (C) Transport mode, application mode.
   (D) Transport mode, tunnel mode.

e. Distance vector multicast routing is based on the combination of

   (A) BGP and RPM   **(B)** RIP and RPM
   (C) RIP and OSPF   **(D)**   BGP and RIP

f. Polling and selecting are function of _____ in HDLC protocol.

   (A) S-frame   **(B)** I-frame
   (C) U-frame   **(D)** D-frame

g. Public Switched Telephone Network (PSTN) is an example of _____ network.

(A) Message-switched   (B) Packet-switched
(C) Circuit-switched   (D) All of above.

h. P-persistent, non-persistent and 1-persistent, belong to _____ techniques.

(A) ALOHA   (B) CSMA
(C) CDMA   (D) CSMA-CD

i. Neighboring routers exchange routing table that state the set or vector of known distances to others destinations in

(A) Destination Vector Protocol.   (B) Source Routing Protocol.
(C) Link State Protocol.   (D) Distance Routing Protocol.

j.   The following provides multiplexing and switching that supports broad ranges of services and is connection-oriented packet-switching technique.

(A) ATM   (B) Wireless Networks
(C) FDDI   (D) B-ISDN

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

Q.2 a. Compare OSI and TCP/IP reference model.   **(6)**

      b. Explain ADSL and xDSL and their features.   **(4)**
      c. Explain application layer protocol services.   **(6)**

Q.3 a. Explain ATM adaptation layers and ATM addressing technique.   **(6)**

      b. Explain the differences and similarities between PNNI and OSPF.   **(5)**

      c. Explain SNMP and mention network management issues.   **(5)**

Q.4 a. Explain the following data link layer transfer services: **(6)**

          (i) Selective Repeat ARQ
          (ii) Go-Back-N ARQ

      b. Give the frame format for IEEE 802.11 Wireless LAN.   **(4)**

      c. Explain the structure of packet switch. **(6)**

Q.5 a. Explain peer-to-peer protocols and service models.   **(5)**
      b. Explain HDLC configuration and transfer modes.   **(6)**

      c. Use HDLC and Ethernet to identify three similarities and three differences between medium access control and data link control protocols.   **(5)**

Q.6 a. Explain real-time transport protocol packet format.   **(4)**

      b. Explain differentiated services to improve quality of service in networks.   **(4)**

    c. Explain soft state in RSVP protocol. **(4)**

    d. Explain survivability in MPLS. **(4)**

Q.7   a. An organization is granted the block 211.17.180.0/24. /24 indicates network mask. The administrator wants to create 32 subnets. **(6)**

      (i) Find the subnet mask.
      (ii) Find the number of addresses in each subnet.
      (iii) Find the first and last addresses in subnet 1.

    b. Explain source routing and distance vector routing and give their applications. **(6)**

    c. Explain various migration issues from IPv4 to IPv6. **(4)**

Q.8   a. Explain mobile IP and compare it with static IP. **(5)**

    b. Explain MIME functionality and various header fields. **(6)**

    c. Suppose that a university campus is covered by 802.11 wireless LANs that are connected to the campus IP backbone. Explain how SIP (Session Initiation Protocol), RTP (Real-time Transport Protocol) and associated protocols can be used to provide mobile phone service across the campus. Explain how the service can be extended to provide service to other universities. **(5)**

Q.9   a. Explain multicast routing protocols. **(6)**

    b. Explain quality of service in ATM networks. **(5)**
    c. Explain various security issues in IPv4 and IPv6. **(5)**