AMIETE – ET (OLD SCHEME)

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

DECEMBER 2010

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 half an hour 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. In _____ transmission, the channel capacity is shared by both communicating devices at all times.

   (A) Simplex **(B)** Half-duplex
   (C) Full-duplex **(D)** Half-Simplex

b. The following are scheduling approaches used in medium access control protocols

   (A) Reservation, polling and token passing
   (B) Reservation, polling and token buffering
   (C) Reservation, polling and token dropping
   (D) Reservation, polling and token storing

c. Window Size field belongs to --------- segment.

   (A) OSPF **(B)** UDP
   (C) IP **(D)** TCP

d. In TDM, for *n* signal sources of the same data rate, each frame contains ------- slots.

   (A) n – 1 **(B)** n
   (C) n +1 **(D)** n /2

e. In ATM Adaptation Layer, packet framing and error-detection are functions of

   (A) Service-specific convergence sub layer
   (B) Segmentation and reassembly sub layer
   (C) Common part convergence sub layer
   (D) Network specific convergence sub layer

f. I-frame, S-frame and U-frame belong to the following protocol

   (A) TCP **(B)** SNMP
   (C) ICMP **(D)** HDLC

g. Assured forwarding per-hop behavior delivers the aggregate traffic from a particular customer with high assurance as long as the aggregate traffic does not exceed the traffic profile. This technique is used in

(A) Session control protocol   (B) Differentiated services
(C) MLPS   (D) RSVP

h. In virtual circuit switching, the identifier that is used for data transfer is

(A) VCI   (B) VPNI
(C) VUNI   (D) None

i. Given IP address 18.250.31.14 and the subnet mask 255.240.0.0, what is subnet address?

(A) 18.240.1.1   (B) 18.250.0.0
(C) 18.250.1.1   (D) 18.240.0.0

j. RIP and OSPF belong to

(A) Multicast routing protocols   (B) Internet routing protocols
(C) Mobile IP   (D) B-ISDN

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

Q.2 a. Explain essential features of network architectures. **(6)**

b. Give the functionality of presentation layer and session of OSI reference model. **(5)**

c. Explain features of LAN and WAN and give their applications. **(5)**

Q.3 a. Mention any four communication parameters for ADSL and xDSL. **(4)**

b. Give an example to illustrate circuit switched network. Explain various stages. **(6)**

c. Explain various routing parameters in packet switched network. **(6)**

Q.4 a. Explain IPv6 header format. Give the migration issues from IPv4 to IPv6. **(6)**

b. Compare and contrast OSPF and BGP internet routing protocols. **(5)**

c. What do you understand by Internet Traffic? Explain its types. **(5)**

Q.5 a. Explain the following CSMA schemes:
   (i) 1-Persistent   (ii) N-Persistent
   (iii) Non-Persistent **(9)**

b. Mention various types of IEEE 802 LAN standards. **(3)**

c. Explain the working of FDDI **(4)**

Q.6 a. Draw the packet header format of Real Time Transport Protocol (RTP) and explain the significance of various fields. **(10)**

b. What do you understand by the Overlay model in Network Architecture? **(6)**

Q.7 a. Consider the following network: **(6)**
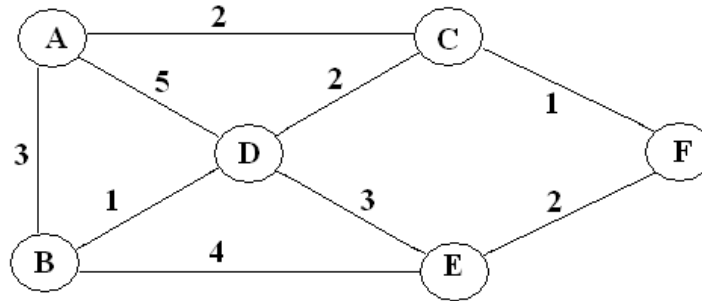
(i) Use Dijkstra algorithm to find the set of shortest paths from node 4 to other nodes. Give sequence of steps.
(ii) Find the set of associated routing table entries.

b. Explain link state routing. **(4)**

c. Explain delays in message switching and packet switching. **(6)**

Q.8 a. Explain the working of SMTP and mention sequence of steps for sending and receiving mails. **(8)**

b. Explain features of IPv4 and IPv6 security and IPSec packet format. **(8)**

Q.9 a. Explain ATM service categories. **(6)**

b. Give the working of ATM Signaling. **(5)**

c. Can PNNI be modified to provide QoS routing in the Internet? Explain **(5)**