*Name* : ...............................................................

*Roll No.* : ...........................................................

*Invigilator's Signature :* .........................................

## CS/B.TECH(ECE-NEW)/SEM-6/EC-602/2011

# 2011

## COMPUTER COMMUNICATION & NETWORKING

*Time Allotted* : 3 Hours                    Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

### GROUP – A

### ( Multiple Choice Type Questions )

1.  Choose the correct alternatives for any *ten* of the following :

$10 \times 1 = 10$

  i)  Telephone system employs which of the following data transfer modes ?

   a)  Simplex

   b)  Half duplex

   c)  Full duplex

   d)  Either half duplex or full duplex.

  ii)  Error detection at the data link level is achieved by

   a)  Bit stuffing

   b)  Cyclic redundancy codes

   c)  Hamming codes

   d)  Equalization.

6104                                    [ Turn over

iii) IP address in the class B is given by

    a) 125.123.123.2      b) 191.023.21.54

    c) 192.128.32.56      d) 10.14.12.34

iv) In the ................. random-access method there is no collision.

    a) ALOHA      b) CSMA/CD

    c) CSMA/CA      d) Token-passing.

v) The term 'polling' is related to

    a) multiple access protocol

    b) data-link control

    c) random access

    d) none of these.

vi) IEEE 802.5 standard is

    a) Token Ring      b) Token Bus

    c) LLC      d) FDDQ.

vii) TCP is a/an

    a) reliable connection oriented protocol

    b) unreliable connection oriented protocol

    c) reliable connectionless protocol

    d) unreliable connectionless protocol.

viii) Blue-tooth uses ................. to communicate between two devices.

    a) Radiowave

    b) Microwave

    c) Infrared

    d) None of these, a separate technology exists.

ix) Which of the following allows access to devices on one network ?

    a) Multiplexer          b) Gate-way

    c) Switch              d) Modem.

x) Which of the encodings is used in Ethernet LAN ?

    a) Polar encoding

    b) Differential Manchester encoding

    c) Manchester encoding

    d) Block coding.

xi) In circuit switching which one of the following is a disadvantage ?

    a) Wastage of bandwidth

    b) Call set-up time

    c) Congestion during the transmission

    d) None of these.

xii) The maximum size of TCP header is

    a) 64 Byte          b) $2^{16}$ Byte

    c) 60 Byte          d) 16 Byte.

### GROUP – B

### ( Short Answer Type Questions )

Answer any *three* of the following.      3 × 5 = 15

2. a) What is firewall ?

    b) Discuss each type of firewall briefly.      2 + 3

3. What do you mean by the term 'redundancy' ? How is CRC generated from sender side ? How does a single bit error differ from a burst error.      1 + 2 + 2

4. Why is flow control necessary in data communication ? Why start bit and stop bit are used in serial asynchronous communication ?      3 + 2
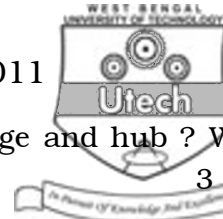
5. What is the basic difference between bridge and hub ? Why is hub called multi-port repeater ? 3 + 2

6. Explain different types of line coding scheme with the help of an example. Consider the bit sequence to be encoded is 100101010.

## GROUP – C

### ( Long Answer Type Questions )

Answer any *three* of the following. 3 × 15 = 45

7. a) Name the layers of an ISO-OSI-layer model of network and explain the functions of each layer.
   b) With the help of an example of your choice, explain the difference between bit rate and baud rate.
   c) Differentiate between the services provided by POP and IMAP. 7 + 4 + 4

8. a) What is routing ? Discuss on different routing techniques.
   b) Discuss briefly on ATM network model. 8 + 7

9. a) What are the different types of encryption techniques ?
   b) What do you mean by Asymmetric Key Cryptography ?
   c) Briefly describe RSA algorithm. 4 + 3 + 8

10. a) What is IP address ? Why is it unique and universal ?
    b) What is the difference between multicasting and broadcasting ?
    c) Write down the advantages of subnetting.
    d) What is datagram ? Briefly describe IP datagram. Evaluate the minimum & maximum size of an IP datagram. 2 + 2 + 3 + 2 + 2 + 4

11. Write short notes any *three* of the following : 3 × 5
    a) Internet Security
    b) Circuit and Packet switching
    c) DHCP
    d) DQDB
    e) DNS.

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