



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/BCA(Separate Supple)/SEM-5/BCA-501/2011  
2011**

**DATA COMMUNICATION AND COMPUTER 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 × 1 = 10

- i) Protocols are
  - a) Agreement on how communication components are to communicate
  - b) Logical communication channels for transferring data
  - c) Physical communication channels for transferring data
  - d) None of these.
- ii) The ..... is a product of the LLC sub layer.
  - a) 802.3 frame
  - b) 802.5 frame
  - c) PDU
  - d) Preamble.



- iii) Mail services and directory services are available to network users through the ..... layer.
- a) data link layer                      b) session layer  
c) transport layer                      d) application layer.
- iv) The method of communication in which transmission takes place in both directions, but only one direction at a time is called
- a) simplex                                  b) full duplex  
c) four wire circuit                      d) half duplex.
- v) In PCM, an analog to ..... conversion occurs.
- a) analog                                  b) digital  
c) QAM                                      d) differential.
- vi) Encryption/Decryption provides a network with
- a) privacy                                  b) authentication  
c) integrity                                  d) non-repudiation.
- vii) What is the full form of VPN ?
- a) Visual Public Network  
b) Virtual Private Network  
c) Virtual Public Network  
d) None of these.
- viii) How many layers are there in the TCP/IP protocol ?
- a) 7    b) 5  
c) 4    d) 6.
- ix) DQDB is an acronym for
- a) distributed queue data bus  
b) differential queue data bus  
c) data queue dual bus  
d) distributed queue dual bus.





**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. Which is more efficient among the two : circuit switching or virtual circuit switching ? Why ? Compare Datagram approach with Virtual circuit approach in packet switching.  
 $6 + 4 + 5$
8. a) Draw a digital encoding format for NRZI, Manchester code, Differential Manchester coding for the digital signal 01001100011 and also write down the procedure in brief.  
b) Compare TCP/IP with OSI layer architecture. What are the major differences between these two protocols ?  
 $9 + ( 2 + 4 )$
9. a) What are the X.25 layer ? How does each relate to the OSI model ?  
b) How does the frame layer address field differ from the HDLC address field ?  
c) Explain the token ring network ( IEEE 802.5 ) & FDDI.  
d) What do you mean by data security ?  $4 + 3 + 5 + 3$
10. What are the three main functions of data link layers ? Why is flow control needed ? What is the mechanism of ENQ/ACK and poll/select ? Why are addresses needed in poll/select but not in ENQ/ACK ?  $3 + 4 + 4 + 4$
11. Discuss the concept of redundancy in error detection. What is the formula to compute the number of redundancy bits required to correct a bit error in a given a number of data bits. What is the purpose of the Hamming code ?  
 $2 + 5 + 5 + 3$