Code No: 114CR

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, November/December - 2015
DATA COMMUNICATION
(Information Technology)

Time: 3 Hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a)   What is the difference between syntax and semantics?   [2M]
 b)   Determine the minimum bandwidth, baud and bandwidth efficiency for 16-PSK
      with a bit rate of 9600 bps.   [3M]
 c)   Define cable attenuation and cross talk.   [2M]
 d)   Distinguish between balanced and un-balanced transmission lines.   [3M]
 e)   What is the purpose of dial tone and when it is applied to a telephone circuit?
                                                                                          [2M]
 f)   What are the functions of telephone set?   [3M]
 g)   What is false handoff? What is an interference avoidance scheme?   [2M]
 h)   Distinguish between error detection and error control.   [3M]
 i)   What is the purpose of scrambler and descrambler circuits?   [2M]
 j)   Define modem synchronization and list its functions.   [3M]

PART- B

(50 Marks)

2.a)   Briefly describe the Cisco three layer model.
 b)   Describe the principles of ASK and FSK? Compare them.   [5+5]
OR
3.a)   List and briefly describe the five basic data communications network topologies.
 b)   Compare and contrast QPSK and QAM modulations.   [5+5]

4.a)   Draw the metallic transmission line equivalent circuit and explain its working
      principle.
 b)   List the metallic transmission line types. Compare them.   [5+5]
OR
5.a)   Describe the principle of FDM with a block diagram.
 b)   What is regenerative repeater? Describe its principle of working with a block
      diagram.   [5+5]

6.a)   Describe in detail about DTMF keypad and frequency allocations.
 b)   Describe the principle of cordless telephone system.   [5+5]
OR
7.a)   What is local subscriber loop? Describe in detail.
 b)   Describe C- type line conditioning used in telephone.   [5+5]

8.a) Describe in detail about UDSC control channels.
  b) Describe INTERIM standard 95. [5+5]

OR

9. Determine the BCS for the following data and CRC generating polynomials:
    Data $G(x) = x^7 + x^5 + x^4 + x^2 + x^1 + x^0 = 10110111$
    CRC $P(x) = x^5 + x^4 + x^1 + x^0 = 110011$ [10]

10.a) Distinguish between Digital Service unit and channel service unit.
   b) Draw the block diagram of MODEM and describe its principle. [5+5]

OR

11. Describe in detail about asynchronous FSK voice band MODEM. Compare it with synchronous voice band MODEM. [10]

---ooOoo---