

5E3252
B.Tech. V Sem. (Main/Back) Examination Dec. 2012
Computer Science
5CS3 Telecommunication Fundamentals
Common for CS & IT

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any five question selecting one question from each unit .
 All Questions carry equal marks. Schematic diagrams must be
 shown wherever necessary. Any data you feel missing suitably be
 assumed and stated clearly. Units of quantities used / calculated
 must be stated clearly.*

Use of following supporting material is permitted during examination.
 (Mentioned in form No. 205)

1. _____ Nil _____

2. _____ Nil _____

UNIT-I

- Q.1 (a) What is channel capacity? Discuss Shannon capacity formula.
 Suppose there is spectrum of a channel 3Mhz & $SNR_{dB} = 24dB$ then
 find out its capacity & How many signaling levels are required.
[2+4+4=10]
- (b) What is the difference between OSI model & TCP/IP model? [6]

OR

- Q.1 (a) What are the various transmission media? Explain guided media in
 detail. [8]
- (b) What is transmission impairments? Explain. [4]
- (c) Consider a stream of binary sequence 0100101011. Draw the wave
 form for this sequence using- [4]
- (i) Manchester encoding (ii) NRZ
 (iii) Bipolar - AMI (iv) Pseudo ternary

UNIT-II

Q.2 (a) What is sliding window protocol? what should be the size of window?
Explain. [8]

(b) Define following:-

(i) Bit stuffing

(ii) Parity check

(iii) Checksum

(iv) Functions of data link layer [4x2=8]

OR

Q.2 (a) Give the mathematical derivation of stop & wait ARQ. [8]

(b) Find the FCS for message D=1010001101 & Pattern P=110101 by the cyclic redundancy check. [8]

UNIT-III

Q.3. (a) What is HDLC? Explain [8]

(b) How slotted aloha is twice more efficient than pure aloha? [4]

(c) What is channel allocation methods? [4]

OR

Q.3. (a) What is CSMA/CD? Explain. [8]

(b) Compare throughput of CSMA & CSMA/CD. [4]

(c) Define collision free multiple access. [4]

UNIT-IV

- Q.4 (a) Explain TDMA frame structure. [4]
 (b) Compare TDM & FDM. [4]
 (c) Explain time division & space- time - space division multiplexing. [8]

OR

- Q.4 (a) Explain synchronus TDM. [4]
 (b) What is the TDMA super frame structure? Explain. [4]
 (c) Explain ADSL, Compare performance of FDMA & TDMA [8]

UNIT-V

- Q.5 (a) What are the various spread spectrum techniques? Explain frequency hopped spread spectrum techniques. [8]
 (b) Explain CDMA. What is forward & reverse CDMA channel ? [8]

OR

- Q.5 (a) Describe following -
 (i) M-sequence
 (ii) Handoff
 (iii) IMT-2000 [12]
 (b) What is Walsh code synchronization ? Explain. [4]
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