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Roll No. ....

**EIGHTH SEMESTER**

**B.E. (EC)**

**MID SEM EXAMINATION**

**March 2007**

**COE/ EC-412 FAULT TOLERANT COMPUTING**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

**Note :** Answer any **TWO** questions.  
All questions carry **EQUAL** marks.  
Assume suitable missing data, if any.

- 1[a] Prove the following statement "A preset homing sequence whose length is atmost  $(q-1)^2$  exists for every reduced q-state synchronous sequential machine". **3**
- [b] Design the checking experiment for the sequential machine shown in Table-1.

Present states	Next states and Present outputs	
	x = 0	x = 1
A	C, 0	B, 0
B	A, 0	B, 1
C	B, 1	C, 0

**7**

- 2[a] Why stuck-at fault modeling sometimes can not be applied in CMOS circuits; Illustrate it by citing one example. **2**
- [b] How do you model input bridging fault and feedback bridging fault? **2**
- [c] Cite an example of switching function which can oscillate or behave like asynchronous sequential machine with feed back bridging faults. Explain your answer w.r.t. the cited switching function. **4**
- [d] Define (i) MTBF and (ii) MTTR **2**

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**EIGHTH SEMESTER**

**B.E. (EC)**

**MID SEM EXAMINATION**

**March 2007**

**EC-413 COMPUTER COMMUNICATION &  
ELECTRONIC SWITCHING**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

**Note :** Answer **ALL** questions.

All parts of a question are to be attempted in continuity.

Assume suitable missing data, if any.

- 1[a] What is the difference between service point address, logical address and a physical address? 2
- [b] What is the role of session layer checkpoints? 1½
- [c] Match the following to one of the seven OSI layers
- (i) Route determination
  - (ii) Flow control
  - (iii) Interface to outside world
  - (iv) Packet switching
- 2
- 2[a] Consider a baseband transmission channel with bandwidth of 10 MHz. What bit rates can be supported by the bipolar line code and the Manchester line code? 2
- [b] Suppose an organization leases a T-1 line between two sites. Suppose that 32 kbps speech coding is used instead of PCM. Explain how the T-1 line can be used to carry twice the number of calls. 2½
- [c] Compare circuit switching and packet switching. 1½
- 3[a] Explain the control field format of HDLC frame. 3
- [b] A telephone modem is used to connect a personal computer to a host computer. The speed of the modem is 56 Kbps and the one way propagation delay is 100 ms.
- (i) Find the efficiency for stop and wait ARQ if the frame size is 256 bytes.
  - (ii) Find the efficiency of Go-Back-N if 3-bit sequence numbering is used with frame sizes of 256 bytes.  
(Assume bit error rate of  $10^{-4}$ ) 4
- [c] Compare the performance of stop and wait, Go-Back-N and Selective Repeat ARQ for different values of bit error rate. 1.5

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**EIGHTH SEMESTER**

**B.E. (EC)**

**MID SEM EXAMINATION**

**March- 2007**

**EC-411 CONSUMER ELECTRONICS**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

**Note : Answer ALL questions.**

**Assume suitable missing data, if any.**

- 1[a] Calculate the interval, number of octaves and harmonics in the frequency range of 62.5 Hz to 2 KHz.
- [b] If the sound pressure level of  $20 \times 10^{-6}$  pascals is 0 db<sub>SPL</sub>, calculate SPL in db for a sound pressure level of 63 pascals.
- [c] If the efficiency of a loud speaker is 6% and the input power is 24 watts, calculate the intensity of sound the loud speaker will generate at a distance of 2 mts. The loud speaker is omni directional
- [d] The sensitivity of a microphone is 140 db below IV per Pascal. Calculate its output.
- [e] The output of a directional microphone is 3 mV. If an omni directional microphone is placed in similar conditions gives 100  $\mu$ V, calculate the directivity of the microphone.
- [f] Define coefficient of absorption.
- [g] Define loudness and intensity of sound.

**7x1**

- 2[a] Explain the working of moving coil microphone mention its characteristics with typical values. **2**
- [b] Describe noise canceling microphone. **1**
- 3[a] Explain the working of moving coil loudspeaker and give its characteristics. **2**
- [b] Explain dual L/S system and the necessity of cross over network. **1**
- 4[a] Give essential requirements of a Hi-Fi system. **2**
- [b] Explain bass and treble frequencies. **1**
- [c] Explain reverberation. **1**
- 5[a] Derive the relationship between head gap tape speed and frequency of audio signal in analog tape recording system. **2**
- [b] If the head gap is 6 microns and speed of the tap is 9.5 cm/sec, calculate maximum usable frequency. **1**