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Roll No. ....

**EIGHTH SEMESTER**

**B.E. (COE)**

**MID SEM EXAMINATION**

**March 2007**

**COE-411 COMPUTER COMMUNICATION &  
ELECTRONICS SWITCHING**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

**Note : Answer ALL questions.**

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

- 1[a] What is ADSL? Explain briefly. 2
- [b] A modem constellation diagram has data points at the following coordinates (1, 1), (1, -1), (-1, 1) and (-1, -1). How many bps can a modem with these parameters achieve at 1200 bauds. 2
- [c] There are two networks both of which provide reliable connection oriented service one of them offers a reliable byte stream and the other offers a reliable message stream. Are these identical? If so, why is the distinction made? If not, give an example of how they differ. 2
- [d] Compare circuit, message, packet and virtual packet switched networks. Suggest a switching technology for integrating voice, video and data. 4
- 2[a] What is statistical multiplexing? Where is it used? 1
- [b] Show that transmission efficiency of Selective Repeat ARQ is given by  
$$\eta = (1 - P_f) \left( 1 - \frac{n_o}{n_f} \right)$$
 where symbols have usual significance 3
- [c] Write a program for the transmitter and the receiver implementing stop and wait ARQ over a data link that can introduce errors in transmission. Assume station A has an unlimited supply of frames to send to station B. Only ACK frames are sent from station B to station A. 3
- [d] Calculate the maximum link utilization efficiency for stop and wait flow control mechanism if the frame size is 2400 bits, bit rate is 4800 bps and distance between the devices is 2000 km. Speed of propagation over the transmission media can be taken as 200,000 kmps. 3

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**EIGHTH SEMESTER**

**B.E.(COE)**

**MID SEM EXAMINATION**

**March 2007**

**COE-413 SOFTWARE ENGINEERING**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

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

Assume suitable missing data, if any.

- 1[a] What do you mean by software Engineering?  
[b] What are the differences between Program and software product?  
[c] Discuss the generic phases of the work associated with the software Engineering. 4
- 2 What do you mean by software life cycle model? Discuss the major phases in the waterfall model. 4
- 3 Explain how a software development effort is initiated and finally terminated in the spiral model and explain why this model is considered to be a meta model. 4
- 4[a] Differentiate between lines of coded (LOC) metric and function point metric (FP).  
[b] Discuss the various project estimation techniques. 4
- 5 Write short notes on the following :  
[a] Software crisis  
[b] Configuration management. 4

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**EIGHTH SEMESTER**

**B.E. (EC)**

**MID SEM EXAMINATION**

**March 2007**

**COE/EC-412**

**SIGNAL PROCESSING-II**

**Time: 1 Hour 30 Minutes**

**Max. Marks : 20**

**Note :** Answer any **FOUR** questions.

All questions carry **EQUAL** marks.

Assume suitable missing data, if any.

- 1[a] Show that a relaxed linear system is causal iff for any input  $x(n)$  such that

$$x(n) = 0 \text{ for } n < n_0 \Rightarrow y(n) = 0 \quad \forall n < n_0 \quad 5$$

- [b] Consider the system

$$y(n) = T[x(n)] = x(n^2)$$

Determine if the system is time invariant.

- 2 Determine and sketch the convolution  $y(n)$  of the signals graphically & analytically.

$$x(n) = \begin{cases} 1/3^n & ; \quad 0 \leq n \leq 6 \\ 0 & ; \quad \text{else where} \end{cases}$$

$$h(n) = \begin{cases} 1 & ; \quad -2 \leq n \leq 2 \\ 0 & ; \quad \text{else where} \end{cases} \quad 5$$

- 3 Compute the response of the system

$$y(n) = 0.7y(n-1) - 0.12y(n-2) + x(n-1) + x(n-2)$$

to the input

$$x(n) = n.u(n). \quad 5$$

- 4 A signal  $x(n)$  has the following  
Fourier Transform:

$$x(\omega) = \frac{1}{1 - ae^{-j\omega}}$$

Determine the FT of the following signals:

- (a)  $x(2n+1)$   
(b)  $x(n) * x(-n)$

5

- 5 Prove the following of DFT:

- [a] Time Reversal  
[b] Parseval's Theorem  
[c] Periodicity  
[d] Linearity  
[e] Circular Frequency Shift.