**Indian Institute of Information Technology Sri City, Chittoor**

Name of the Exam: Overview of Computers Workshop

Duration: 90 mins Max. Marks: 40

Instructions:

1. Closed book exam, no notebooks, no formula sheets, no electronic gadgets.
2. Calculator is allowed.

---

Answer the following questions:

Q1. [10 Marks] What are the advantages of a file system over Database management system? (10M)

Q2. [10 Marks]

i. In TDMA, which of the following resource is divided among multiple users (1M):

a. Time
b. Frequency
c. Code
d. Space

ii. The co-channel reuse ratio formula (Q) for cellular reuse (N) is given by (1M):

a. Q = sqrt(3N)
b. Q = sqrt(5N)
c. Q = sqrt(7N)
d. Q = sqrt(9N)

iii. Write the Walsh Hadamard Code matrix for 8 x 8 System; starting with 2 x 2. (3M)

iv. Write a matlab program for generating the following function (3M)

x(t) = t for 0 < t < 1
0 for 1 < t < 2
t-2 for 2 < t < 3
0 for elsewhere

v. Briefly explain how a call is setup between two callers with a suitable diagram (2M)

Q3. [10 Marks]

i. How long does it take a packet of length 2000 bytes to propagate over a link of distance 3400km, propagation speed $2.5 \times 10^8$ m/s, and transmission rate 10Mbps? [2M]

(a) 13ms

(b) 130s

(c) 0.13s

(d) 13s

ii. Which of the following delays are not constant ? [1M]

a) Propagation b) Queuing c) Transmission d) Processing

iii. Processing delay is the time taken to transmit all the bits of the packet into the link and Processing delay is fixed. [1M]

True b) False

iv. Explain the below layer functionalities [ 3 *1 = 3M]

a) Transport Layer b) Network Layer c) Data link Layer

v. Differentiate TCP and UDP in at least 2 aspects [2M]

vi. Write your understanding of WORM in a line or two [1M]

Q4. (a) Write briefly the 8085 microprocessor in terms of number of pins, power supply, clock frequency and the technology used for the fabrication of the IC. Status flags in 8086 microprocessor. [5M]

(b) Analyze the following pseudocode and determine the content of registers A, R3 and R2. Assume that FAH and 2BH are stored in RAM locations (of 8051) 31 and 32, respectively. *Justify your answer with details*. [5M]

```
        ORG 0000H
        MOV R0, #31
        MOV R1, #01H
        MOV A,  #00
        MOV R2, A
        MOV A, @R0
Back:   INC R0
        ADD A, @R0
        JNC  Level1
        INC  R2
Level1: DJNZ R1, Back
        MOV  R3, A
        INC A
IIITS:  SJMP   IIITS
        END
```