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] Explain types of server (in brief).

Q2. [10 Marks]

i. In wireless cellular reuse, the relation between reuse ratio (N) and cell edge length R, Distance between co-channel cells (D) is given by (1M)

a. D/R = Sqrt (N)
b. 5*D/R = Sqrt (N)
c. 7 * D/R = Sqrt (N)
d. 9 *D/R = Sqrt (N)

ii. A 5 MHz wireless system has a combination of FDMA with 200 KHz bands. Further, each of the bands is distributed sequentially to 8 users.

a. How many unique FDMA bands exist? 1M
b. How many unique users can be served using a combination of TDMA and FDMA? 3M

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

x(t) = 0 for 0 < t < 1
t-1 for 1 < t < 2
0 for 2 < t < 3
t-3 for 3 < t < 4
0 for elsewhere

iv. Give examples of infrastructure based and infrastructure less networks (1M)

v. Give two examples of mobile computing (1M)

Q3. [10 Marks]

i. How long does it take a packet of length 3000 bytes to propagate over a link of distance 3000km, propagation speed 2.5×10^8 m/s, and transmission rate 10Mbps? [2M]

(a) 12ms

(b) 120s

(c) 0.12s

(d) 12s

ii. Which of the below delay depends on number of bits to transmit? [1M]

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

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

a) True b) False

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

a) Application Layer b) Presentation Layer c) Physical Layer

v.. Explain how TCP is different from UDP in at least 2 aspects [2M]

vi. Write your understanding on DoS in a line or two [1M]

Q4. (a) Write briefly on the functional blocks of the 8086 microprocessor. Registers in 8085 microprocessor. [5M]

(b) Analyze the following pseudocode and determine the content of registers A, R3 and R2. Assume that DDH and A8H 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
```