Indian Institute of Information technology Sri City
UG1 Semester 1: End semester Examinations

Date: 27/02/2023 Time 90 Mins Maximum Marks: 30M

Instructions:

A. All questions are compulsory, write all sub parts of a question at one place.
B. If required, consider the necessary assumptions.

Question 1:

a. For a CDMA system, a Walsh Hadamard code is used to obtain Orthogonality. Write the Walsh Hadamard Code matrix for 8 users (8 x 8 System); starting with 2 x 2. **3M**

b. A Digital wireless system (say, GSM) employed by the operator uses both TDMA and FDMA. A 50 MHZ bandwidth is allotted to the operator. The allotted band is first divided to smaller bands of 400 KHz; and each smaller band is time divided among 16 users, in a round robin fashion.

i. How many sub-bands are available; after the FDMA process? **1M**

ii. How many independent transmissions are possible (how many users can be transmit) for the operator in the above system? Hint: Both TDMA and FDMA are used **1M**

c. Describe the advantages of Wireless LAN over wired LAN? **2M**

d. What is a controller area network (CAN)? Explain in brief with an example of CAN. Draw a schematic of a sample CAN **3M**

Question 2: Compare the salient features of microprocessors 8085 and 8086. **5M**

Question 3: Analyze the following assembly language pseudo code and determine the contents of register A and the status of the flags after execution of the code. **8M**

```
ORG 0000H
MOV A, #100
MOV R0, #40H
MOV 40H, #0FH
ADD A, @R0
Here: sjmp Here
END
```

Question 4: The data stored in the memory address location 8085 is AB and 8086 is 11, write a program to add these two values and store the result in the memory location 8051 using 8085 assembly language. **7M**