## functions in all possible ways using function pointer.

4B. int add (int a, int b) { return a+b; } int mul (int a, int b) { return a\*b;

int sub (int a, int b) { return a-b;

int div (int a, int b) { return a/b;

5A. Write main program code in C to implement a Que data structure using dynamic memory allocation. Also write code for function declarations mentioned below. Main program can have more than one Que at a given point of time. Let the node contain a single integer data. Print the data when De-queing and return -1 when trying to de-que an empty que. struct node\* create\_Q(); EnQ (int x, struct\* Que); int DeQ ( struct\* Que );

# AANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL (A constituent unit of MAHE, Manipal)

### SIXTH SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION **AUGUST 2021** SUBJECT: EMBEDDED SYSTEM DESIGN (ECE - 4053)

#### **TIME: 2 HOURS**

3B.

### **Instructions to candidates**

- Answer any FOUR FULL questions.
- Missing data may be suitably assumed.
- 1A. Explain I2C protocol. List and explain the steps for data transfer in I2C interface with relevant diagrams.
- What is a watchdog timer? Explain its working with relevant diagram. 1B.

(6+4)

2A. Explain round robin scheduling with an example. Explain its advantages and disadvantages.

4A. What is a process/task? List the goals of a process/task. With a neat detailed diagram,

Declare a function pointer which can be used to point to above functions. Assign all these functions in all possible ways to this function pointer. Write statements to call these

}

}

2B. List and explain the factors on which interrupt latency depends on.

Compare function que scheduling with RTOS method of scheduling.

explain the states of a task showing how tasks change the state.

3A. Describe the 3 processor technologies with relevant diagrams.

(6+4)

(6+4)

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(6+4)

MAX. MARKS: 40

5B. Define a reentrant function. Explain with an example, the issue that we may encounter while using a non-reentrant function.

(6+4)

- 6A. Explain with relevant graphs, the time to market design metric. What is its importance.
- 6B. With a neat diagram depicting memory while program is running, explain the categories of program memory.

(5+5)