

(A constituent unit of MAHE, Manipal)

SIXTH SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION MAY 2022 SUBJECT: EMBEDDED SYSTEM DESIGN (ECE - 4053)

TIME: 3 HOURS

MAX. MARKS: 50

- Instructions to candidates
 - Answer all 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.
1B.	Define three main IC technologies. Explain the benefits of using each of the three
	different IC technologies?
	(6+4)
2A.	Describe round robin scheduling with an example. Explain its advantages and
	disadvantages.
2B.	List and explain the factors on which interrupt latency depends on.
	(6+4)
3A.	Explain the term critical section of a program. What is its importance?
3B.	Compare Function-que-scheduling with RTOS method of scheduling.
	(6+4)
4A.	With relevant diagram and pseudocode, explain the use of semaphore for mutual
	exclusion between two tasks.
4B.	Explain the use of following keywords in C programming with simple program
	illustrations:
	A. extern
	B. volatile
4C.	Write a C program to read from keyboard and store in memory, the roll number and
	marks of all students in one subject. There are 50 students and maximum marks for the
	subject is 15. Design your program such that it uses memory to store data efficiently.
	(5+3+2)
5A.	Explain with relevant graphs, the time to market design metric. What is its importance.
5B.	Define a re-entrant function. Explain with an example code (or pseudocode C code) the
	issue that we may encounter while using a non re-entrant function.
	(5+5)