MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

SEVENTH SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION

DECEMBER 2021-JANUARY 2022

SUBJECT: OPERTING SYSTEM FOR ADVANCED PROCESSORS (ECE -4081)

Instructions to candidates

- Answer **ALL** questions.
- Missing data may be suitably assumed.

Q. No.	Questions	M*	C*	A*	B*
1A.	Demonstrate how MUTEX function can be used in RTX code for LPC1768 to print the value of a global variable which gets updated in each task. Assume that there are 2 tasks. Write the comments to explain the logic.	4	3	1,2	AP
1B.	Write the process data structure in RTX. Write a RTX code to show the concurrent execution. Use any type of scheduling algorithm.	3	2	1,2	U
1C.	Briefly explain the producer consumer problem.	3	3	1,2	R
2A.	Write a RTX code for LPC1768 using a mailbox function to send the result of sum of two numbers from task1 to task 2. Write the comments to explain the logic.	4	5	1,2	AP
2B	The two process P and Q have an execution sequence as: get A, release A, get B, and release B for the process P; and get B, get A, release B and release A for the process Q. With the help of a diagram explain the possible execution paths. Is the deadlock is inevitable? Write the instruction sequence which can avoid the deadlock situation.	3	2	1,2	U, AP
2C.	Compare and contrast heap_1 to heap_4 in FreeRTOS	3	2	1,2	U