Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

FIFTH SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION
(MAKEUP)
FEBRUARY 2022
SUBJECT: MICROPROCESSORS (ECE-3153)

TIME: 75 MINUTES **MAX. MARKS: 20**

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

Q. No.	Questions	M*	C*	A*	B*
1A.	Interface stepper motor and two keys (SW1 and SW2) to LPC 2148 microcontroller. Write a program in C to do the following: i. When SW1 is closed, rotate the stepper motor 15 steps in clockwise direction ii. When SW2 is closed, rotate the stepper motor 15 steps in anticlockwise direction	4			
1B.	What are the factors which influences the design of stack for interrupts in ARM7? With an example, describe how to setup the stack for the following modes when the core comes out of reset: i. Supervisor mode stack ii. IRQ mode stack iii. User mode stack	3			
1C.	What are the uses of MACROs in assembly language programming? Define the macro with name HELLO which takes 3 arguments, find sum of first two numbers and subtract the third number from the sum and return the result in the R4.	3			
2A.	Describe the functions of following instructions in detail. Also identify the type of addressing mode and result after execution of each instruction for the given pre condition for all instructions: i. SMLAL R3, R5, R6, R8 ii. MOVS R2, R4, LSR R0 iii. STMIB R1!, {R1-R4} iv. RSC R0, R81, R7, LSR #8	4			
2B.	Write an ARM 7 assembly level program to check whether the given string is palindrome or not.	3			
2C.	Describe OMAP architecture and list the advantages over RISC architecture. Write a C program to generate a square wave using OMAPL138.	3			

M*--Marks, C*--CLO, A*--AHEP LO, B* Blooms Taxonomy Level