

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.Sc. DEGREE EXAMINATION – PHYSICS
SECOND SEMESTER – APRIL 2022
PPH 2501 – EMBEDDED SYSTEMS

Date: 15-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

Q. No Answer **ALL** questions (10 x 2 = 20 Marks)

- 1 State the use of TMOD register in microcontroller 8051.
- 2 Write code to perform multiplication of two numbers by direct addressing mode using microcontroller 8051.
- 3 Write a note on EQU assembler directive in PIC.
- 4 Explain BSF and BCF instructions in PIC.
- 5 Write down the instructions which a) moves 23h into WREG b) adds A8h to WREG in PIC.
- 6 Write a program to toggle bit 2 in Port B continuously in PIC.
- 7 Differentiate MRS and MSR instructions in ARM.
- 8 Explain the role of the “lr” register of ARM7 processors.
- 9 If r1 contains 1, what will be its content after, ADD r1, r1, LSL #3? Explain.
- 10 Write a program to solve, $y = a + b - c$ in ARM.

PART – B

Answer any **FOUR** questions

(4x7.5 = 30)

- 11 With an example each, explain the various arithmetic instructions in μ C 8051.
- 12 Develop an ASM program for μ C 8051 to find the largest of a byte array of 20h elements in external Data RAM and store the largest byte in internal RAM location 16h.
- 13 Discuss the different addressing modes in PIC with a program for addition for each mode.
- 14 Write a program to add data stored at 0x10, 0 x11,0 x12 and 0x20,0x21,0x22 respectively and stores the sum at 0x30,0x31,0x32 in PIC.
- 15 Explain the significance of PINSEL registers in ARM.
- 16 Develop a program to find the smallest number in an array of 20 numbers by immediate post indexed mode of addressing in ARM.

