

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**M.Sc. DEGREE EXAMINATION – PHYSICS****SECOND SEMESTER – APRIL 2023****PPH2MC02 – ELECTRONICS II**

Date: 04-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A – K1 (CO1)**Answer ALL the questions****(5 x 1 = 5)**1. **MCQ**

- a) The number of lines in the address bus of μP 8086 is
a) 8 b) 16 c) 20 d) 24
- b) The remainder of a 16 bit by 8 bit division will be available in the register
a) AL b) DL c) AH d) DH
- c) The interrupt which is not vectored is
a) NMI b) INTR c) INT 00 d) INT 01
- d) What is the result of the following code?
MOV A,#15H
MOV R5,#15H
ADD A,R5
a) 30 b) 2A c) 42 d) 1E
- e) Which of the following is the correct extension of the Python file?
a) .python
b) .pl
c) .py
d) .p

SECTION A – K2 (CO1)**Answer ALL the questions****(5 x 1 = 5)**2. **Fill in the blanks**

- a) CMP instruction performs _____
- b) The instruction that is used to translate from one code to another _____
- c) The number of bytes in the instruction queue of μP 8086 is _____
- d) Auto reload mode is allowed in _____ mode of the timer in microcontroller 8051.
- e) The _____ keyword is used for function in Python language.

SECTION B – K3 (CO2)**Answer any THREE of the following****(3 x 10 = 30)**

3. Illustrate the various arithmetic instructions of μP 8086
4. With a block diagram, explain the internal architecture of μP 8086.
5. Explain the various shift and rotate instructions available in μP 8086.
6. With an example each, explain the various modes of addressing data in μC 8051.
7. Write programs in python to a) solve $y = a + \frac{b}{2} - c$ b) to find the largest of three numbers.

(5+5)

SECTION C – K4 (CO3)

Answer any TWO of the following **(2 x 12.5 = 25)**

8. Discuss the various conditional and unconditional branch instructions of μP 8086.
9. Explain with a block diagram the sequence of events that take place during a single datum DMA transfer in μP 8086.
10. Discuss in detail about serial communication in 8051 with the SFRs and modes of operation.
11. Illustrate with suitable example python list and explain the operations that can be carried out on a list.

SECTION D – K5 (CO4)

Answer any ONE of the following **(1 x 15 = 15)**

12. Write an ASM program to solve $y = a! + b! - c^2 + d^2$ using procedures. Use register relative mode of addressing of μP 8086.
13. Develop ASM programs to produce flashing and left to right rolling patterns for the eight LEDs interfaced to microprocessor 8086.

SECTION E – K6 (CO5)

Answer any ONE of the following **(1 x 20 = 20)**

14. a) Generate a square wave with an ON time of 3 ms and an OFF time of 10ms on all pins of port 0 using microcontroller 8051 timer 0, mode 1. Assume the XTAL frequency =22 MHz. (10)
b) DPX and DPY are two unsigned 32-bit numbers. Develop a program for 8086 to find the product and store the result at DPZ. Assume DPX, DPY and DPZ to be word variables. (10)
15. Write programs in python to solve $\int_0^1 \frac{1}{1+x^2} dx$ using a) Trapezoidal rule b) Simpson's 1/3 rule. (10+10)
