Reg. No. | | | | | | | | | |

M.E. / M.TECH. DEGREE EXAMINATIONS, MAY/JUNE 2017

SECOND SEMESTER

MECHATRONICS ENGINEERING

MS16203 – MICROCONTROLLERS AND PLC

(Regulation 2016)

Q. Code: 355479

Time: Three Hours **Maximum : 100 Marks**

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. Differentiate between CISC & RISC.
2. What are the merits of micro controller over microprocessor?
3. How port latch can be read/modify/write ?
4. What is a scratch pad?
5. Write down the different priority interrupts used in 8051.
6. What is the significance of RRC & RLC?
7. Define bouncing and how it can be minimised?
8. What is handshaking mode?
9. What are all the main factors to be considered in selection of a PLC?
10. Write any four data manipulation instructions used in PLC.

PART B - (5 X16 = 80 Marks)

11. (a) Draw the pindiagram of diagram of 8051 microcontroller. Explain about the significance of every pin of 8051. **(16)**

(OR)

(b) Explain briefly about the Architecture of 8051 with suitable block diagram representation. **(16)**

12. (a) (i) Write short notes on UART & USART with the perspective of serial communication. **(6)**

(ii) What is the need of RS232 and explain in detail about 9 DB pins of RS232 with neat sketch? **(10)**

(OR)

(b) (i) Explain in detail about various addressing modes of 8051 with an example. **(12)**

(ii) Write a short note on single bit instructions with two examples. **(4)**

13. (a) (i) Write short note on status register of PIC18FXXX. **(4)**

(ii) Explain in detail about the various instruction sets available in PIC architecture with suitable example. **(12)**

(OR)

(b) (i) Write in detail about the pipelining and its importance on performance measures. **(4)**

(ii) Explain briefly about CCP, ECCP & PWM programming of PIC18FXXX. **(12)**

14. (a) Elaborate about interfacing of display with PIC18FXXX microcontroller. **(16)**

(OR)

(b) Explain in detail about ADC interfacing with 8051. **(16)**

15. (a) (i) Explain in detail about components involved in PLC with suitable sketch. **(12)**

(ii) Write the importance of latching in a ladder diagram. **(4)**

(OR)

(b) (i) What is the need of time PLC Ladder logic. Explain in detail about different timer configurations available in PLC. **(12)**

(ii) Explain about cascading of timers & counters using one ladder logic. **(4)**