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

Question Paper Code : 83166

M.E. DEGREE EXAMINATION, JANUARY 2014.

First Semester

Embedded System Technologies

ET 7102 – MICROCONTROLLER BASED SYSTEM DESIGN

(Common to M.E. Power Electronics and Drives, M.E. Control and Instrumentation Engineering and M.E. Electrical Drives and Embedded Control)

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give the important control pins of 8051.
2. How is serial communication performed in 8051?
3. What are the interrupts used in 8051?
4. Define RTOS.
5. Write any four instructions of PIC microcontroller, and state in a line the operation performed.
6. What is I/O port of PIC?
7. What are the interrupts available in PIC?
8. How EEPROM memory stores the information?
9. What is interfacing?
10. What is a standalone data acquisition system?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss briefly about the addressing modes of 8051. (8)

(ii) Explain in detail about the instruction set of 8051. (8)

Or

(b) Along with a neat sketch of its functional block diagram, discuss briefly the features available in 8051? Also list its special function Registers?(16)

12. (a) Discuss in detail about the interrupt programming of serial communication. (16)

Or

(b) Explain in detail about the LCD clock and thermometer using full RTOS. (16)

13. (a) (i) With a neat diagram explain the architecture of PIC microcontroller. (10)

(ii) Discuss about the memory organization of PIC. (6)

Or

(b) With a suitable example, illustrate how anyone of the built–in timer of PIC is useful. (16)

14. (a) (i) Discuss in detail about the serial I/O port expansion available in PIC. (8)

(ii) Illustrate with a suitable example, how I^2C communication is carried out using PIC? (8)

Or

(b) Elaborate on

(i) Sensor interfacing. (8)

(ii) Flash memory. (8)

15. (a) Write short notes on

(i) LCD display interface. (8)

(ii) Keypad interface. (8)

Or

(b) (i) Discuss in detail about the motor control using microcontroller. (8)

(ii) Explain the controlling of AC and DC appliances using microcontroller. (8)
