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

Question Paper Code : 52938

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Seventh Semester

Electrical and Electronics Engineering

EE 6008 — MICROCONTROLLER BASED SYSTEM DESIGN

(Common to Electronics Instrumentation Engineering/ Instrumentation and Control Engineering)

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Compare on-chip and off-chip memory performance for a micro controller.
2. What are the addressing modes of PIC?
3. What is the minimum and maximum clock frequency of PIC 16CXX?
4. What are the features of timer 1?
5. How is BUS arbiteration done by I^2C Bus?
6. What is key debouncing?
7. What are device drivers?
8. List out some features of Thumb instruction in ARM architecture.
9. What are the steps used by pipelining technique?
10. What is a compiler?

PART B — (5 × 13 = 65 marks)

11. (a) Explain with neat diagram the architecture of PIC16C7x microcontroller.

Or

(b) Explain in detail the

(i) Control instructions and

(ii) Addressing modes of PIC microcontroller.

12. (a) Explain the concepts of interrupts and an interrupt service routine to handle critical events.

Or

(b) With a simple program explain how a timer can be configured as a pulse generator for interfacing.

13. (a) Explain with neat diagram explain the IIC for memory interfacing in PIC microcontroller.

Or

(b) Explain with neat diagram interfacing of serial EEPROM using I^2C bus.

14. (a) With Neat sketch, explain the functional block diagram of ARM architecture.

Or

(b) Explain with an example in detail the Data processing instruction set of ARM processor.

15. (a) Explain in detail, the 3-state ARM pipeline organization. Show the difference between a single cycle and a multi-cycle instruction.

Or

(b) Using suitable examples, explain the C-language programming and compilation for ARM processor.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the interface of sensor to PIC microcontroller with display of sensor value on LCD.

Or

(b) Explain with neat diagram the use of UART to interface two PIC resources.

———————