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Question Paper Code : 20440

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Seventh Semester

Electrical and Electronics Engineering

EE 6008 – MICROCONTROLLER BASED SYSTEM DESIGN

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the PIC16C6X microcontroller core features?
2. Write short note on register file structure of PIC.
3. Write the various external interrupts of PIC micro controller.
4. What is the purpose of watchdog timer?
5. Define baud rate.
6. What are the applications of serial EEPROM?
7. List out some of ARM development tools.
8. What are the main features of ARM processor?
9. List out the various instruction set of ARM processor?
10. What are the pipeline stages in five stage pipeline?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Briefly explain and draw the architecture of PIC16CXX microcontroller.
(ii) Explain how the instruction pipelining implemented in PIC.

Or

- (b) (i) Briefly explain the instruction set of PIC microcontroller.
(ii) Explain in detail about any two addressing modes of PIC micro controller.

12. (a) What is Interrupt? Explain the interrupt structure of PIC microcontroller with neat diagram.

Or

- (b) Briefly explain the timer modules in PIC microcontroller.
13. (a) Draw and explain the architecture of on chip ADC of PIC microcontroller in detail and write a suitable assembly language program for configuration the ADC.

Or

- (b) (i) Discuss in detail of I²C – bus in PIC microcontroller.
(ii) Briefly explain about UART in PIC microcontroller.
14. (a) With neat sketch, explain the functional block diagram of ARM architecture.

Or

- (b) Briefly explain ARM programmer's model.
15. (a) With neat sketch, explain the 3-stage pipeline ARM organization.

Or

- (b) Explain briefly about embedded ARM applications.

PART C — (1 × 15 = 15 marks)

16. (a) Develop an suitable algorithm for 16 bit addition and subtraction using an suitable ARM processor.

Or

- (b) Develop a suitable algorithm to generate an PWM signal using any of the port available in PIC16C7X for an duty cycle of 75%.