

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 70458

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electrical and Electronics Engineering

EE 6008 — MICROCONTROLLER BASED SYSTEM DESIGN

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

(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. What are the two parameters of interrupt source?
4. Draw the interrupt logic diagram.
5. List out some registers associated with UART.
6. Difference between bus operation and bus subroutine.
7. What is the purpose of Program Counter?
8. List out some of ARM Development Tools.
9. Draw the structure of multicycle instruction of three stage pipeline operation.
10. What is the role of a co-processor?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Detail description about the various types of addressing modes. (7)
(ii) Explain about the instruction set of PIC microcontroller. (6)

Or

- (b) Draw and explain about the architecture of PIC Microcontroller.

12. (a) Explain the process and procedure to display constant strings and variable strings.

Or

- (b) Explain the concept of interrupt logic and interrupt structure of PIC microcontroller with an example.
13. (a) What is meant by I²C module? Explain how I²C is interfaced with PIC microcontroller.

Or

- (b) Illustrate about an use of UART to interface two PIC resources with neat diagram.
14. (a) With neat sketch, explain the functional block diagram of ARM architecture.

Or

- (b) Briefly explain ARM programmer's model.
15. (a) Using Suitable example, explain the various instruction set of ARM processor.

Or

- (b) Explain how does the coprocessor interface of the ARM work.

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%.
