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Question Paper Code : 10564

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2025

Sixth/ Seventh/Eighth Semester

Electrical and Electronics Engineering

EE 8018 – MICROCONTROLLER BASED SYSTEM DESIGN

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the various groups of instruction set in PIC micro controller?
2. What is 'W register in PIC Microcontroller?
3. Define key switch.
4. State the features of timer 0.
5. What is meant by A/D converter?
6. Differentiate CISC and RISC architecture.
7. Write short notes the features of ARM Processor.
8. What is pipeline in the context of ARM processor.
9. Point out the differences between ARM and PIC.
10. Give the program and data memory sizes of PIC microcontroller, PIC 16C7X.

PART B — (5 × 13 = 65 marks)

11. (a) Explain about the Architecture of PIC 16C7X with necessary diagrams.

Or

- (b) Explain in detail the register file structure and addressing modes of PIC microcontroller.

12. (a) Elaborate in detail, the block diagram of timer 1 and its associated registers.

Or

- (b) Briefly explain the interrupt structure of PIC 16C7X microcontroller with neat diagram.
13. (a) Discuss in detail about I²C bus and serial EEPROM.

Or

- (b) Explain the interfacing of D/A converter with 8051 microcontroller with neat diagram.
14. (a) (i) Explain ARM core data flow modal with neat diagram. (7)
(ii) Which are the different conditional flags of ARM processor. (6)

Or

- (b) Draw and explain the general block diagram of ARM processor.
15. (a) Discuss the 5-stage pipeline ARM organization.
- Or
- (b) (i) Discuss about ARM coprocessor interface. (6)
(ii) Provide any two embedded ARM applications with details. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Design the steps for interfacing an alarm controller with an 8051 microcontroller with a diagram and explain in detail.

Or

- (b) Explain the embedded design process involved in the design of an alarm clock.