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Question Paper Code : 70544

B.E. / B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

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. What is meant by PIC microcontroller and list out its features?
2. How the size of the microcontroller is determined?
3. What is the need of timer?
4. What is meant by IntService Interrupt Service Routine?
5. What is the use of I²C bus in PIC microcontroller based system?
6. How the Baud rate is selected in UART?
7. What is meant by Pipeline hazards?
8. List the advantages of RISC architecture.
9. Draw and outline the ARM CPSR format.
10. List the data types that the ARM processors support.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail with a neat block diagram about the architecture of PIC 16C6X.

Or

- (b) Describe the Program Memory Considerations of the PIC6C6x/7x family of microcontrollers.

12. (a) Explain in detail about the External interrupt in PIC microcontroller.

Or

(b) Discuss in detail with necessary diagram about the pulse-width-modulated output from a PIC microcontroller.

13. (a) Discuss in detail about the I²C bus for peripherals chip access.

Or

(b) Describe in detail about the UART and its use in PIC microcontroller.

14. (a) Explain in detail about the ARM development tools.

Or

(b) Discuss in detail about the ARM control flow instructions.

15. (a) Explain with the neat diagram about the 5-stages pipeline ARM organization.

Or

(b) Discuss in detail about the ARM coprocessor interface.

PART C — (1 × 15 = 15 marks)

16. (a) With the neat block diagram explain the design methodology for designing of Digital Camera.

Or

(b) Design a PIC microcontroller-based heart beat monitor system and explain it with a neat diagram.