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**Question Paper Code : 80574**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fifth Semester

Electrical and Electronics Engineering

EE 8551 – MICROPROCESSORS AND MICROCONTROLLERS

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

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the registers of the 8085 processor.

2. Compare software and hardware interrupts.

3. State the purpose and importance of NOP instruction.

4. Differentiate cascade stack and memory stack.

5. Compare microprocessor and microcontroller.

6. List the interrupts of the 8051 microcontrollers.

7. Point out the operating modes in the 8254 timer/counter.

8. Mention the categories of Digital to Analog converters.

9. State any four applications of microcontrollers.

10. Point out the need for a driver in between the microcontroller and the stepper motor.

PART B — (5 × 13 = 65 marks)

11. (a) Describe the features in the hardware architecture of the 8085 microprocessor with a neat diagram. Explain the function of the various registers available in it.

Or

(b) Explain an 8085 interrupt process and mention the difference between a maskable and a non-maskable interrupt.

12. (a) Describe with suitable examples the data transfer, data manipulation, and control instructions in the 8085 microprocessor.

Or

(b) Describe what is meant by counting looping and indexing.

13. (a) Describe with a neat block diagram the architecture of the 8051 microcontrollers.

Or

(b) Explain the programming concepts of 8051 in comparison with 8085.

14. (a) Explain the architecture, functions and registers of the 8255 PPI.

Or

(b) With a neat diagram discuss briefly the internal architecture and registers of the 8279 keyboard/display controller.

15. (a) Explain the stepper motor control using 8051 and write an assembly language program for running the stepper motor in a clockwise direction.

Or

(b) Describe the control system design of the washing machine using 8051 microcontroller programming.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the timing diagram for the 8051's external data memory read cycle.

Or

(b) Describe the various instruction sets that are used in 8051 microcontrollers.

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