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**Reg. No. :**

**Question Paper Code: 44040**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fourth Semester

Computer Science and Engineering

14UEC423 - MICROPROCESSORS AND MICROCONTROLLERS

(Common to Information Technology)

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. When a *CALL* instruction is executed, the stack pointer register is

(a) Decremented by two (b) Incremented by two (c) Decremented by one  (d) Incremented by one

2. Vector address of interrupt RST 7.5 is

(a) 0.002CH (b) 0.002CH (c) 0.003CH (d) None of these

3. Which of the following instruction is a logical instruction?

(a) DIV AB (b) TEST (c) CALL (d) AAM

4. The 8086 has a

(a) 16-bit data bus and 20-bit address bus (b) 8-bit data bus and 20-bit address bus (c) 16-bit data bus and 16-bit address bus (d) 8-bit data bus and 16-bit address bus

5. The synchronization between processor and coprocessor can be done by \_\_\_\_\_\_\_\_\_\_ connection and the \_\_\_\_\_\_\_\_\_\_\_ instruction.

(a) RQ/GT0 and RQ/GT1, FWAIT (b) INT and NMI, WAIT (c) BUSY and TEST, FWAIT (d) S0 and QS0, WAIT

6. The 8087 coprocessor operate in \_\_\_\_\_\_\_\_\_\_with an 8086 processor and with the same instruction\_\_\_\_\_\_\_\_\_\_\_

(a) Series, byte (b) Parallel, byte (c) Series, bits  (d) Parallel, bits

7. The 8279 is a

(a) DMA controller (b) Programmable keyboard display interface (c) Counter (d) Interrupt controller

8. How many address lines are required to access 1 MB RAM using microprocessor?

(a) 16 (b) 8 (c) 20 (d) 12

9. The 8051 has \_\_\_\_\_\_\_\_ 16-bit Timer/Counter registers.

(a) 5  (b) 4 (c) 3 (d) 2

10. What will be the output after execution of the following instruction?

MOV A, #55

ANL A, #67

(a) 54  (b) 45 (c) 55 (d) 67

PART - B (5 x 2 = 10 Marks)

11. Compare single byte, two byte and three byte instructions.

12. List out the flags present in 8086.

13. Define Bus Arbitration.

14. Highlight the method used to transfer large blocks of data between external device and memory at high speed.

15. List out the priority of 8051 interrupts.

PART - C (5 x 16 = 80 Marks)

16. (a) Write an ALP to convert binary to decimal number using 8085. (16) Or

(b) Explain the instruction set of 8085 in detail (Two examples for each type). (16)

17. (a) (i) Explain the various addressing modes of 8086. (12)

(ii) Describe assembler directives. (4)

Or

(b) (i) Illustrate the each pins of 8086 with neat explanation. (8)

(ii) Outline about the MACRO with example. (8)

18. (a) Draw the architecture of 8087 numeric data processor and explain each block.

(16)

Or

(b) Explain the architecture of 8089 I/O processor with a diagram. (16)

19. (a) Show the function of keyboard and display controller with a neat sketch. (16)

Or

(b) Apply 8085 microprocessor for interfacing stepper motor control system and write an assembly language program for speed control. (16)

20. (a) Draw the architecture of 8051 microcontroller and explain each block. (16)

Or

(b) (i) Describe the different modes of operation of timers/counter in 8051 with its

associated Registers. (8)

(ii) Explain about interrupts in 8051 Microcontroller. (8)