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Question Paper Code: 41354

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

Fifth Semester

Electrical and Electronics Engineering

14UEE504 - MICROPROCESSORS AND MICROCONTROLLER PROGRAMMING

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

(Polar Graph sheets to be provided)

PART A - (10 x 1 = 10 Marks)

1. The Intel 8085 microprocessor is having _____ number of address lines.
(a) 8 (b) 16 (c) 24 (d) 32
2. The number of flags of the 8085 microprocessor is
(a) 8 (b) 6 (c) 5 (d) 10
3. XCHG is a
(a) Data transfer Instruction (b) Arithmetic Instructions
(c) Logical Instructions (d) IO instructions
4. A general purpose microprocessor requires which of the following device to operate properly
(a) ROM (b) RAM (c) IO Ports (d) All of these
5. The 8051 microcontroller has
(a) 8 bit data bus and 16 bit address bus
(b) 16 bit data bus and 8 bit address bus
(c) 8 bit data bus and 8 bit address bus
(d) 16 bit data bus and 16 bit address bus

6. Which of the following register can be used as two individual 8 bit registers?
 (a) IE (b) DPTR (c) TMOD (d) PSW
7. The register that maintain an original copy of the respective initial current address register and current word register is
 (a) mode register (b) base address register
 (c) command register (d) mask register
8. Intel 8255, under the Hand shake I/O mode of operation, we have _____ modes.
 (a) Mode 0 (b) Mode 1 (c) Mode 2 (d) All of these
9. The device that is used to obtain an accurate position control of rotating shafts in terms of steps is
 (a) DC motor (b) AC motor (c) Stepper motor (d) Servo motor
10. How to change the direction of rotation of a stepper motor?
 (a) changing the sequence of pole excitation
 (b) changing the voltage
 (c) changing the current
 (d) changing the speed of excitation

PART - B (5 x 2 = 10 Marks)

11. Write the functions of an accumulator.
12. Write the use of ALE signal.
13. Compare CY and OV flags.
14. Write the use of 8251 chip.
15. State the equivalent instruction for HALT to terminate the program for an Intel 8051.

PART - C (5 x 16 = 80 Marks)

16. (a) Sketch and explain the architecture of an Intel 8085 microprocessor. (16)

Or

- (b) Sketch and explain the timing diagram of the (i) INR A and (ii) INR M instructions. (16)
17. (a) Define instruction. Explain the types of instructions in an Intel 8086 Microprocessor with example. (16)

Or

(b) Write an Intel 8085 Assembly language program to add two 16 bit numbers by using DAD instruction. (16)

18. (a) Explain the memory organization of the 8051 microcontroller. (16)

Or

(b) Explain the pin configuration of 8051 microcontroller. (16)

19. (a) Design a microprocessor based system for the Intel 8085 microprocessor such that it should contain 8 K of EPROM using 2 K EPROM IC, 4K of RAM using 2K RAM and 3 numbers of 8255. (16)

Or

(b) With neat sketch explain the operation of INTEL 8253 Timer/Counter. (16)

20. (a) Draw and explain the hardware circuit required for interfacing a washing machine to microcontroller. (16)

Or

(b) Draw and explain the hardware circuit required for interfacing a 4 phase stepper motor to microcontroller. (16)
