Reg. No. :

Question Paper Code: 45304A

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. _____instruction is used to return to calling program after completing the subroutine sequence

     (a) RST   (b) CALL   (c) RET   (d) TRAP

2. What are level triggering interrupts?

     (a) RST 6.5 and RST5.5   (b) RST7.5 and RST 6.5
     (c) RST 5.5 and RST7.5   (d) INTR and TRAP

3. If *'n'* denotes number of clock cycles and *'T'* denotes period of the clock at which the microprocessor is running, then duration of execution of loop once can be denoted by

     (a) $n+T$ (b) $n-T$ (c) $n*T$ (d) n/T

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 instruction that is used to complement the bit of a bit addressable SFR in 8051 microcontroller is

    (a) CLR C   (b) CPL C   (c) CPL bit   (d) ANL bit

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. The internal schematic of a typical stepper motor has

    (a) 1 winding   (b) 2 windings   (c) 3 windings   (d) 4 windings

PART - B (5 x 2 = 10 Marks)

11. Differentiate microprocessor and microcontroller.

12. Write the use of ALE signal.

13. List the five interrupt sources of 8051 microcontroller.

14. Write the use of 8251 chip.

15. What is meant by closed loop control?

PART - C (5 x 16 = 80 Marks)

16. (a) Draw the hardware architecture of 8085 microprocessor and explain the functions of each block.   (16)

Or

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(b) Draw the timing diagram for opcode fetch and memory write machine cycle and explain its operations. (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 five types of addressing modes supported by 8085 instruction set with necessary examples. (16)

Or

(b) Draw the architecture of 8051 microcontroller and explain the functions of each block (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 the circuit diagram for stepper motor control using 8051 microcontroller and write an ALP to run the stepper motor using 8051. (16)

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