Reg. No. : | | | | | | | | | | |

Question Paper Code: 45304

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. The register in the 8085A that is used to keep track of the memory address of the next op-code to be run in the program is the

   (a) stack pointer (b) program counter
   (c) ALU (d) accumulator

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. 8051 has _____timer _____counter.

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

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. 8259 has

(a) IR_0-IR_7(8 interrupt) (b) 4 interrupt
(c) 3 (d) 2

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. List the five interrupt sources of 8051 microcontroller.

14. What is the output modes used in 8279?

15. Define step angle.

PART - C (5 x 16 = 80 Marks)

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

Or

(b) Draw the timing diagram for memory read 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 multiply two 16 bit numbers by using DAD instruction. (16)

18. (a) Explain the memory organization of the 8051 microcontroller. (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) (i) Describe in detail about A/D converter. (8)

(ii) Write an ALP to display the message 'SUCCESS' by interfacing 8279 with 8085. (8)

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

Or

(b) Explain the working operation of Washing Machine control with 8051. (16)

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