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

Question Paper Code: 45304

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. In a DMA write operation the data is transferred

   (a) from I/O to memory (b) from memory to I/O

   (c) from memory to memory (d) from I/O to I/O

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. Direction flag is used with

   (a) String instructions (b) Stack instructions

   (c) Arithmetic instructions (d) Branch instructions

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. To save the DAC from negative transients the device connected between OUT1 and OUT2 of AD 7523 is

(a) p-n junction diode (b) zener (c) FET (d) BJT

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. What is an Interrupt? How the interrupt are classified?

12. What are the instructions used for data transfer in 8085 microprocessor?

13. List the five interrupt sources of 8051 microcontroller.

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) Elaborate the functions of each block in the architecture of 8085 with necessary diagram. (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) List out various addressing modes of 8085 and build all types of addressing modes with one example. (16)

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

Or

(b) (i) Explain the functions of I/O ports present in 8051 microcontroller. (8)

(ii) Illustrate the instruction set of 8051 microcontroller with examples. (8)

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)

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