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

Question Paper Code: 45304

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. _____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. Direction flag is used with

   (a) String instructions (b) Stack instructions
   (c) Arithmetic instructions (d) Branch instructions

5. For an interrupt to be served by 8051 microcontroller, it should have duration of

(a) one machine cycle (b) three machine cycles
(c) two machine cycles (d) four machine cycles

6. 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

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. 8279 is

(a) PPI (b) Keyboard, Display interface
(c) UART (d) USART

10. keyboard has 8 interface with 8051 has

(a) Return line scan line (b) Scan line
(c) Return line (d) None of these

PART - B (5 x 2 = 10 Marks)

11. Differentiate microprocessor and microcontroller.

12. Mention any two data transfer instructions of 8085 microprocessor.

13. List the five interrupt sources of 8051 microcontroller.

14. State the features of 8254.

15. State the equivalent instruction for HALT to terminate the program for an Intel 8051.

PART - C (5 x 16 = 80 Marks)

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

Or

(b) Draw the timing diagram for memory read and memory write machine cycle and explain its operations. (16)

17. (a) Explain the five types of addressing modes supported by 8085 instruction set with necessary examples. (16)

Or

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

18. (a) Draw the architecture of 8051 microcontroller and explain the functions of each block (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) Explain the architecture of IC 8259 with a neat diagram. (16)

Or

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

20. (a) (i) Write an ALP to find square of a number using 8051 microcontroller instructions. (8)

(ii) Write an ALP to execute 16-bit addition using 8051 microcontroller. (8)

Or

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

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