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

Question Paper Code: 41354

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. When large delays are required, then to serve this purpose

   (a) one or more count registers can be used
   (b) one or more shift registers can be used
   (c) one or more pointer registers can be used
   (d) one or more index registers can be used

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. 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. 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. What is meant by closed loop control?

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) (i) Illustrate the timing diagram of memory read cycle and memory write cycle in 8085 microprocessor with neat diagrams. (8)

(ii) Classify the types of interrupts available in 8085 microprocessor and state their characteristics. (8)

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

Or

(b) (i) Explain the role of stack in 8085 microprocessor. (6)

(ii) Write an ALP to convert 8-bit hexadecimal value to its corresponding ASCII value. (10)

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) (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) (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 the circuit diagram for stepper motor control using 8051 microcontroller and write an ALP to run the stepper motor using 8051. (16)