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

## Question Paper Code: 35304

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

Fifth Semester

Electrical and Electronics Engineering

01UEE504 – MICROPROCESSORS AND MICROCONTROLLER PROGRAMMING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Define Interrupt and list its types.
2. Describe the pin out details of 8085.
3. List the addressing modes of 8085.
4. Write a program to find one's complement of a given number.
5. Compare 8085 microprocessor and 8051 microcontroller.
6. Mention the interrupts of 8051 microcontrollers.
7. Summarize the features of 8255.
8. Show the Direct Memory Access (DMA) working principle with neat sketch.
9. Write a program to multiply to 8-bit numbers.
10. Examine the full step sequence mode of stepper motor.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the architecture of 8085 microprocessor with neat diagram. (16)

Or

(b) (i) Build the timing diagram of STA $526A_H$. (8)

(ii) Consider a system in which memory space of 64kb is utilized for EPROM. Interface EPROM with 8085 processor. (8)

12. (a) (i) Develop an assembly language program to calculate the sum of series of even numbers in a given set of array. (12)

(ii) Identify the addressing modes for the given instruction

(1) LDA 8000H (2) RAL

(3) MOV A, M (4) MOV B, A (4)

Or

((b) (i) Write an ALP for 8085 to square the given number using look up table approach. (8)

(ii) Identify the addressing modes of the following instruction: ANA, CMP, SPHL and CPE address. (8)

13. (a) With neat sketch explain the architecture of 8051 microcontroller. (16)

Or

(b) With neat structure diagram brief the operation of 8051 microcontroller interrupt with its Interrupt Enable (IE), Interrupt Priority (IP) register format and handling of interrupts in detail. (16)

14. (a) With brief illustrations, explain the block diagram of 8255 in detail. Also discuss the different I/O modes and BSR mode with suitable control word register. (16)

Or

(b) Explain the functional block diagram of 8251 (USART) and its mode of operation with neat sketch. (16)

15. (a) Explain how to control the stepper motor using 8051.Also write the ALP to run the stepper motor in both forward and reverse directions. (16)

Or

(b) Elaborate the washing machine control using 8051 microcontroller with neat sketch. (16)