

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**V SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019**

**Course Code: AE305**

**Course Name: MICROPROCESSORS & MICROCONTROLLERS**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

Marks

- |   |  |     |
|---|--|-----|
| 1 | a) With the help of neat diagrams explain the data buffering and address latching of 8086        | (7) |
|   | b) What you mean by a Procedure? Write any 4 differences between macro and procedure             | (5) |
|   | c) Define interrupt? What is ISR and how it is handled?  | (3) |
| 2 | a) With the help of a neat diagram explain assembly process of 8086                              | (8) |
|   | b) Write the functions of the following signals<br>i) READY   ii) DT/R   iii) ALE   iv) TEST     | (4) |
|   | c) Describe the Flag register in 8086  | (3) |
| 3 | a) Explain the minimum mode configuration of 8086  | (7) |
|   | b) What are assembler directives and explain about LENGTH, EVEN, DQ and EQU assembler directives | (5) |
|   | c) Describe stack operation with example   | (3) |

**PART B**

*Answer any two full questions, each carries 15 marks.*

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|---|---|-----|
| 4 | a) Draw and explain the Superscalar architecture of Pentium Processor                         | (8) |
|   | b) Explain the Status Register of 8087  | (3) |
|   | c) Draw the interfacing circuit of 8086 and 8087  | (4) |
| 5 | a) Explain the procedure for interfacing 8086 with 8K RAM. Also draw the interfacing circuit. | (8) |
|   | b) Explain the Descriptor of 80386  | (5) |

- c) Give any 4 special features of Pentium processor (2)
- 6 a) Explain the branch prediction mechanism in Pentium Processor with an example (8)
- b) Draw the architecture of 8087 Numeric Processor (5)
- c) Explain the functions of the following signals of 8087 (2)
- i) BUSY ii) QS1 and QS0

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Discuss the addressing modes of 8051 with 2 examples (10)
- b) Write any 3 differences between microcontroller and microprocessors (3)
- c) Write an assembly language program for 8051 to find the largest number from an array of 'N' numbers. (7)
- 8 a) Compare the following instructions (3)
- i) MOV A,#15H ii) MOV A,15H iii) MOV C,15H
- b) Describe PSW register of 8051 (5)
- c) Write an assembly language program to interface DAC with 8051. Also draw the circuit schematic. (12)
- 9 a) Explain byte addressable register set of 8051 (10)
- b) Draw the interfacing circuit of 8051 with external memory (3)
- c) Assuming XTAL frequency = 11.0592 MHz, write an assembly language program to generate a square wave of 50 Hz frequency on pin P2.3. (7)