

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017**

**Course Code: CS305**

**Course Name: MICROPROCESSORS AND MICROCONTROLLERS (IT, CS)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 3 marks.*

- |   |  | Marks |
|---|--|-------|
| 1 | List the registers used in 8086 microcontroller.   | (3)   |
| 2 | Describe function of the following signals of 8086.<br>i) INTR      ii) READY      iii) HOLD           | (3)   |
| 3 | State the significance of assembler directives in an assembly language program with suitable examples? | (3)   |
| 4 | Compare macro and subroutine?  | (3)   |

**PART B**

*Answer any two full questions, each carries 9 marks.*

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|---|---|------------|
| 5 | Draw and explain the internal block diagram of 8086.  | (9)        |
| 6 | What are the different addressing modes supported by 8086? Give explanation with suitable examples.   | (9)        |
| 7 | a) Give the architectural and signal differences between 8086 and 8088?<br>b) Write an assembly language program to find the largest number from an unordered array of 8-bit numbers? | (4)<br>(5) |

**PART C**

*Answer all questions, each carries 3 marks.*

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|----|--|-----|
| 8  | Describe interrupt cycle of 8086/88 with neat diagram.                               | (3) |
| 9  | Give description of the following interrupts:<br>(i) Non maskable      (ii) Maskable | (3) |
| 10 | Compare I/O mapped interfacing and memory mapped interfacing.                        | (3) |
| 11 | Mention the salient features of basic I/O mode operation of 8255.                    | (3) |

**PART D**

*Answer any two full questions, each carries 9 marks.*

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|----|--|------------|
| 12 | a) Interface two 4K x 8 EPROMs and two 4K x 8 RAM chips with 8086. Select suitable address maps.<br>b) Give a brief description about interrupt service routine. | (6)<br>(3) |
| 13 | Draw the internal architecture of 8259 and explain.  | (9)        |
| 14 | Describe different modes of operation of the following peripheral ICs:<br>i) 8255      ii) 8279  | (6)        |

**PART E**

*Answer any four full questions, each carries 10 marks.*

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|----|--|------------|
| 15 | a) What are the different types of microcontrollers?<br>b) What factors are needed to be considered for selecting a microcontroller? | (5)<br>(5) |
| 16 | Give brief description of memory and I/O addressing of 8051.   | (10)       |
| 17 | What are different addressing modes supported by 8051?   | (10)       |
| 18 | Draw the internal architecture of 8051 with brief description.   | (10)       |
| 19 | Draw and explain the internal architecture of 8254/8253.   | (10)       |
| 20 | Write an 8051 based assembly language program to perform addition of two 2x2 matrices.   | (10)       |

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