Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth semester B.Tech degree examinations (S) September 2020

**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) | Discuss the usage of following assembler directives in 8086.<br>i) ASSUME ii) DB iii) EQU in 8086. | (5) |
| | b) | Define procedures and macros. | (5) |
| | c) | Define interrupt. What is ISR and how it is handled? | (5) |
| 2 | a) | Explain various configuration modes supported by 8086. | (5) |
| | b) | Explain various addressing modes of 8086 with examples. | (8) |
| | c) | Write a short note on stack operations. | (2) |
| 3 | a) | Explain the concept of multiplexed address and data bus in 8086. | (5) |
| | b) | Explain 8086 maximum mode operation with memory write timing diagram. | (10) |

**PART B**

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

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|---|---|---|---|
| 4 | a) | With the help of block diagram explain 8087 numeric processor architecture. | (10) |
| | b) | Explain the status word register of 8087. | (5) |
| 5 | a) | Explain memory address decoding with an example. | (6) |
| | b) | Describe the concept of branch prediction. | (4) |
| | c) | List the features of Pentium processor. | (5) |
| 6 | a) | Explain the physical address formation in real mode of 80386. | (5) |
| | b) | Explain the Memory Management Unit in 80386 microprocessors. | (10) |

**PART C**

***Answer any two full questions, each carries20 marks.***

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|---|---|---|---|
| 7 | a) | Describe the register set and PSW register of 8051. | (10) |
| | b) | Explain data transfer, arithmetic and branching instructions of 8051 with examples. | (10) |

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|---|---|---|---|
| 8 | a) | Write an 8051- assembly language program to transfer continuously the message "HELLO" serially at 9600 baud, 8-bit data, 1 stop bit. | (10) |
| | b) | How do you select a register bank in 8051 microcontroller? | (5) |
| | c) | Explain the usages of PCON and TCON special purpose registers. | (5) |
| 9 | a) | Write an assembly language program to interface Matrix keyboard with 8051. | (12) |
| | b) | Write an 8051 based ALP to multiply two 8-bit numbers. Store the LSB result at memory location 20H and MSB at 21H. | (8) |

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