

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: AE305

Course Name: MICROPROCESSORS & MICROCONTROLLERS (AE)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks

- | | | Marks |
|---|---|-------|
| 1 | a) Describe with diagram, bus buffering and latching in 8086. | (7) |
| | b) Define assembler directives and operators. | (4) |
| | c) Differentiate between procedures and macros? | (4) |
| 2 | a) Describe assembly Process with neat diagram. | (7) |
| | b) Explain various multiprocessor configuration supported by 8086. | (5) |
| | c) Explain the concept of segment memory. What are its advantages. | (3) |
| 3 | a) With neat diagram explain the minimum mode of operation of 8086. | (8) |
| | b) Define interrupt? What is ISR and how it is handled? | (4) |
| | c) Describe Stack operation with Example. | (3) |

PART B

Answer any two full questions, each carries 15 marks

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|---|---|-----|
| 4 | a) With the help of block diagram explain the 8087-coprocessor architecture. | (8) |
| | b) Describe 80386 descriptor. | (4) |
| | c) Explain the features of Pentium processor. | (3) |
| 5 | a) Explain memory paging in 80386. | (5) |
| | b) Explain Tag word and control word register of 8087. | (7) |
| | c) Describe the concept of branch prediction. | (3) |
| 6 | a) Design and interface 8K RAM and 8K ROM with 8086. Give the memory address decoding for the design. | (7) |
| | b) Differentiate between real and protected mode of 8086. | (4) |
| | c) Explain the super scalar execution in Pentium processor. | (4) |

PART C

Answer any two full questions, each carries 20 marks

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|---|---|------|
| 7 | a) Explain the architecture of 8051 with a neat diagram. | (10) |
| | b) Assuming XTAL = 11.0592 MHz, write a 8051 program to generate a square wave of 50Hz frequency in pin P2.3. | (4) |
| | c) Write an 8051- assembly language program to transfer continuously the message "HELLO" serially at 9600 baud, 8-bit data, 1 stop bit. | (6) |
| 8 | a) Write a 8051 assembly language program to interface Matrix keyboard with 8051 | (10) |
| | b) What are the different ways of operand addressing in 8051? | (5) |
| | c) Describe the PSW register of 8051. | (5) |
| 9 | a) Write a 8051 assembly language program to run the stepper motor in both forward and reverse direction with delay. | (10) |
| | b) Explain data transfer, arithmetic and branch instructions of 8051 with examples? | (6) |
| | c) How do you select the register banks in 8051 microcontroller? | (4) |
