

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

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

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

**Course Code: EC305**

**Course Name: MICROPROCESSOR & MICROCONTROLLER**

Max. Marks: 100

Duration: 3 Hours

**PART A**

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

Marks

- |   |   |     |
|---|---|-----|
| 1 | a) List the functional blocks of a microprocessor. Explain each block.  | (7) |
|   | b) Illustrate a typical microprocessor based system. Explain each block.  | (8) |
| 2 | a) What are the main features of fourth generation microprocessors? Give any three examples.  | (7) |
|   | b) Define the function of the following signals of 8085 microprocessor.   | (8) |
|   | i) $\overline{IO/\overline{M}}$   |     |
|   | ii) ALE   |     |
|   | iii) $\overline{\text{RESET IN}}$   |     |
|   | iv) SID   |     |
| 3 | a) What are the different addressing modes used in 8085? Explain the instruction STAX rp. What is the addressing mode used in this instruction? | (7) |
|   | b) List the different modes of operation of 8255 PPI.   | (8) |

**PART B**

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

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|---|--|------|
| 4 | a) List the flags used in 8086 microprocessor and explain their functions.                         | (8)  |
|   | b) What is a segment register? List the segment registers in 8086.                                 | (7)  |
| 5 | a) Broadly classify instruction set of 8051. Give 2 examples for each class.                       | (10) |
|   | b) Compare programmed input output data transfer with interrupt driven input output data transfer. | (5)  |
| 6 | a) List the special function registers in 8051 microcontroller.                                    | (8)  |
|   | b) Compare a microcontroller with a microprocessor in terms of architectural features.             | (7)  |

**PART C**

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

- 7 a) What is an interrupt? What are the types of interrupts in 8051? Explain interrupt structure of 8051. (10)
- b) What function is performed by Interrupt Enable (IE) register and Interrupt Priority (IP) register in 8051? (5)
- c) How will you blink an LED using timer interrupt? (5)
- 8 a) How will you generate a 1 ms delay using 8051? (5)
- b) How a triangular waveform can be generated using 8051? (10)
- c) What is a stepper motor? How will you interface 8051 to a stepper motor? (5)
- 9 a) What are the advantages of serial data communication? What are its drawbacks? (5)
- b) How will you use 8051 for serial data communication?. (5)
- c) How will you read an analog voltage and display it on LCD using 8051? (10)

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