

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S, FE) / S5 (PT) (S, FE) Examination June 2024 (2015 Scheme)



Course Code: EC305

Course Name: MICROPROCESSORS & MICROCONTROLLERS

Max. Marks: 100

Duration: 3 Hours

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

Marks

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| 1 a) | What are the control signals in 8085. Explain with the help of a diagram | (7) |
| b) | What are the main components of a microprocessor-based system. Explain with an example. | (5) |
| c) | Define instruction cycle, machine cycle and T-state | (3) |
| 2 a) | Draw and explain the architecture of 8085 microprocessor. | (10) |
| b) | Draw the timing diagram for memory read cycle in 8085 | (5) |
| 3 a) | Explain 8279 is a keyboard and display controller with the help of a block diagram | (10) |
| b) | Explain the bus organization in 8085 with diagram | (5) |

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

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| 4 a) | What is the size of RAM in 8051 microcontrollers? How is it organized? | (5) |
| b) | Write a program in assembly to find the sum of first 10 natural numbers | (10) |
| 5 a) | How memory is segmented in 8086 microcontrollers? Which are segment registers? Explain with a neat diagram | (7) |
| b) | Explain the following instructions with an example: | (8) |
| | (i) DJNZ (ii) CJNE (iii) ANL (iv) SETB | |
| 6 a) | Write any four differences between a Microprocessor and a Microcontroller? Give example for microprocessor and microcontrollers? | (5) |
| b) | Draw and explain 8051 Architecture. | (10) |

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

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| 7 a) | Assuming XTAL = 11.0592 MHz, write a program to generate a square wave of 50 Hz frequency on pin P2.3. | (8) |
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- MSA/10/12
- b) How LCD module is interfaced with 8051? Explain with the interfacing diagram. (7)
 - c) Which are the main two registers associated with serial communication? Explain? (5)
- 8
- a) Describe any five RS 232 handshaking signals (5)
 - b) Draw the interfacing diagram of 8051 microcontroller with stepper motor. Write a program in assembly to rotate the motor 180 degree clockwise and 90 degree anticlockwise, if the step angle 7.2 degree. (15)
- 9
- a) Explain with a block diagram how seven segment displays can they be interfaced to 8051? Write the program to display the numbers from 0 to 9 in order. (12)
 - b) Explain TCON and TMOD register with neat diagram (8)
