## K. J. Somaiya Institute of Technology, Sion, Mumbai-22
## (Autonomous College Affiliated to University of Mumbai)

April – May 2024

B.Tech Electronics and Telecommunication Engineering     Scheme II B / II .

Examination: SY (Supplementary).     Semester: IV

**Course Code**: EXC402    and    **Course Name**: Microcontrollers

Date of Exam: 27/07/24     Duration: 2.5 Hours     Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

| Q No | Statement | Max. Marks | CO | BT level |
|---|---|---|---|---|
| **Q.1** | **Solve any six questions out of eight:** | **12** | | |
| 1 | Discuss Instruction Syntax in 8051 | 2 | 1 | U |
| 2 | Discuss CPU timing and machine cycle for 8051 Microcontroller | 2 | 2 | U |
| 3 | Explain SFR related to Timers in 8051 | 2 | 3 | U |
| 4 | Discuss the alternate pin function of PORT 3 | 2 | 3 | U |
| 5 | Compare Jump and call instructions in 8051 | 2 | 4 | AP |
| 6 | WAP to find Largest number in series using 8051 | 2 | 4 | AP |
| 7 | Distinguish between Thumb state and ARM state | 2 | 5 | U |
| 8 | WAP to perform Addition and multiplication using ARM 7 | 2 | 6 | U |
| **Q.2** | **Solve any four questions out of six.** | **16** | | |
| 1 | Distinguish between RISC AND CISC CPU ARCHITECTURES | 4 | 1 | Ap |
| 2 | Explain different types of Semiconductor memories | 4 | 2 | U |
| 3 | Discuss Memory organization of 8051 (Both RAM and ROM) | 4 | 3 | U |
| 4 | Explain Addressing modes in 8051 | 4 | 4 | U |
| 5 | Explain ARM 7 Load Store Model | 4 | 5 | U |
| 6 | Write note on GIPO for ARM | 4 | 6 | U |

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|---|---|---|---|---|
| **Q.3** | **Solve any two questions out of three.** | | **16** | |
| 1 | Explain concept of Interrupts in 8051 | 8 | 1 | U |
| 2 | Explain Virtual Memory Concept with Memory Management Unit with Segmentation and Paging. | 8 | 2 | AP |
| 3 | Explain serial data input and output concept in 8051. Discuss PORT 1 in details | 8 | 3 | U |
| **Q.4** | **Solve any two questions out of three.** | | **16** | |
| 1 | Write a program to generate a delay of 2KHz in 8051 using timer 1 in mode 1 | 8 | 4 | AP |
| 2 | Discuss ARM 7 Programmers Model and List the Registers of ARM-7 | 8 | 5 | U |
| 3 | Explain CORTEX A, CORTEX R and CORTEX M | 8 | 6 | U |

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