**20EI503**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **December, 2023** | **Electronics and Instrumentation Engineering** | | |
| **Fifth Semester** | **Micro controllers** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | What are the types in assembler? | CO1 | L1 | 1M |
|  | b) | Which technology was used for developing 8051 microcontroller? | CO1 | L1 | 1M |
|  | c) | How are the bits of the register PSW affected? | CO1 | L1 | 1M |
|  | d) | What are the uses of loop and call instructions. | CO2 | L1 | 1M |
|  | e) | Write any 2 types of data types. | CO2 | L1 | 1M |
|  | f) | Is there any role of counters in 8051? | CO2 | L1 | 1M |
|  | g) | What is a serial data buffer? | CO3 | L1 | 1M |
|  | h) | What is the use of timing and control unit? | CO3 | L1 | 1M |
|  | i) | What are the different modes of 8255 interfacing? | CO3 | L1 | 1M |
|  | j) | List the functions of I/O port in PIC micro controller. | CO4 | L1 | 1M |
|  | k) | List the features of USART ? | CO4 | L1 | 1M |
|  | l) | Provide atleast 2 features of PIC 16F8XX | CO4 | L1 | 1M |
|  | m) | What are the most common addressing modes of 8051? | CO1 | L1 | 1M |
|  | n) | List the jump instruction in 8051? | CO2 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Provide atleast 7 comparisons between microprocessor and microcontroller | CO1 | L2 | 7M |
|  | b) | Describe the function of following pins of 8051 a)RST b)RXT &TXT c) ALE d)PSEN | CO1 | L3 | 7M |
| **(OR)** | | | | | |
| 3 | a) | Compare 4 –bit,8 –bit,16 –bit and 32 –bit microcontrollers ? | CO1 | L3 | 7M |
|  | b) | Describe the architecture of 8051 . | CO1 | L3 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Explain the types of directives of 8051 with suitable examples . | CO2 | L3 | 8M |
|  | b) | What is the operation performed by the following assembly language program of 8051?  CLR A  MOV R1,#100H  MOV R7,#21H  AGAIN: MOV @R1,A  INC R1  DJNC R7,AGAIN | CO2 | L2 | 6M |
| **(OR)** | | | | | |
| 5 | a) | In a version of 8051 the crystal frequency is 12MHz,find the time delay associated with loop section of the following DELAY sub routine.Consider the machine cycle lasts 12 clock cyclesof the crystal frequency | CO2 | L2 | 8M |
|  | b) | Write the program for the addition,subtraction and multiplication in Assembly language . | CO2 | L2 | 6M |
| **Unit-III** | | | | | |
| 6 | a) | Explain the architecture and working of LCD. Draw the interface of LCD with 8051 microcontroller | CO3 | L3 | 7M |
|  | b) | Explain the generation of different types of waveforms using DAC | CO3 | L3 | 7M |
| **(OR)** | | | | | |
| 7 | a) | With the neat diagram explain interfacing of DAC 0804 to 8051 microcontrollers. | CO3 | L3 | 7M |
|  | b) | Explain the construction and working of stepper motor. Explain the 4- step sequence , step angle and steps per revolution | CO3 | L3 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Discuss in detail about the function of various port pin of PIC micro controller | CO4 | L2 | 7M |
|  | b) | Explain the pin diagram of 16F8XX | CO4 | L3 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Explain the RAM and ROM allocation PIC 16F8XX compiler | CO4 | L3 | 7M |
|  | b) | Explain the different interrupts presented in PIC 16F8XX controller in detail. | CO4 | L3 | 7M |

