**Seat No.: _____** **Enrolment No._____**

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VI- EXAMINATION – SUMMER 2016**

**Subject Code:162002** **Date:21/05/2016**

**Subject Name:Micro Processors & Micro Controllers**

**Time: 10:30 AM to 01:00 PM** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | Draw and explain programming model of 8085 processor. Also mention the difference between microprocessor and microcontroller. | **07** |
| | **(b)** | What is an interrupt? List different interrupts available in 8085 and explain in brief. Differentiate between interrupt handling capabilities of 8085 and 8051. | **07** |
| **Q.2** | **(a)** | Draw the internal block diagram of 8051 microcontroller and explain each block in brief. | **07** |
| | **(b)** | Draw the timing diagram for the instruction LDA 2050 H and explain in detail. If the processor clock is 3 MHz calculate the time required to execute the instruction. | **07** |
| | | **OR** | |
| | **(b)** | State the functions of the following instruction.<br>1) MOV A,#0F1H 2) XCHG 3) PCHL 4) XTHL<br>5) SIM 6) MOVX A,@DPTR 7) XCHD A,@R1 | **07** |
| **Q.3** | **(a)** | Write an assembly language program to find the sum and average of an array of fifteen elements in 8051 microcontroller. Save the sum and average at different locations. | **07** |
| | **(b)** | Write a program for 8085 to arrange the given set of data in ascending order. Assume the suitable memory locations and specify your assumption clearly. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Write a program to toggle all bits of port 1 (send the values 55H and AAH continuously). Use suitable time delay. | **07** |
| | **(b)** | Write a program to generate a continuous square wave with the period of 500 micro Second. Assume the system clock period is 325 ns. And use bit D0 to output the square wave. | **07** |
| **Q.4** | **(a)** | Explain register Banks and stack of 8051 microcontroller. | **07** |
| | **(b)** | What do you understand by the term Addressing Modes? Explain, giving suitable example, all the addressing modes supported by 8085 and 8051. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Interface 4K EPROM and 4K RAM with 8085 processor. Write address range for both the memory chips and also show the address decoding logic | **07** |
| | **(b)** | Discuss port structure of 8051 in detail. | **07** |
| **Q.5** | **(a)** | Explain SCON and PCON SFRs in detail. | **07** |
| | **(b)** | What is stack and stack pointer? Explain working of PUSH and POP instruction with suitable example. | **07** |
| | | **OR** | |

| | | | |
|---|---|---|---|
| **Q.5** | **(a)** | Discuss memory mapped I/O and I/O mapped I/O in detail. | **07** |
| | **(b)** | Explain the Program Status Word register of 8051 microcontroller. | **07** |

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