| Enrolment No. |
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Subject Code:160903

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER - VI EXAMINATION - WINTER 2015** 

Date:08/12/ 2015

| Tiı | me:2<br>tructio | Attempt all questions.  Make suitable assumptions wherever necessary.   |          |
|-----|-----------------|---|----------|
| Q.1 | (a)<br>(b)      | With the help of neat sketch explain the functional block diagram of 8051. Explain the instructions 1.PUSH 2.POP 3.DJNE 4.LCALL                     | 07<br>07 |
| Q.2 | (a)<br>(b)      | Explain all the bits of TCON & TMOD register.  Design a circuit for interfacing 8KB RAM & 8KB ROM to 8051.  OR                                      | 07<br>07 |
|     | <b>(b)</b>      | Explain how seven segment LED display can be interfaced with 8051.  | 07       |
| Q.3 | (a)             | Write a program to find the average of ten 8 bit numbers stored at memory location 30H onwards. Store the result at 55H.                            | 07       |
|     | <b>(b)</b>      | List the interrupts available in 8051 microcontroller. Explain the priority level of each interrupt & also explain how priority can be changed.  OR | 07       |
| Q.3 | (a)<br>(b)      | Write a program to count the number of 1's and 0's of an 8 bit number. Explain the function of following pins. 1.PSEN 2.ALE 3.EA                    | 07<br>07 |
| Q.4 | (a)             | Write a C program to generate a square wave of frequency 20Hz at pin P2.1 (Consider oscillator frequency as 12MHz.)                                 | 07       |
|     | <b>(b)</b>      | Explain SCON & SBUF register.  OR   | 07       |
| Q.4 | (a)<br>(b)      | Write a short note on I/O ports of 8051.  Draw & explain stepper motor interface with 8051.   | 07<br>07 |
| Q.5 | (a)<br>(b)      | Briefly explain the modes of serial communication.  Write a short note on different microcontroller families.                                       | 07<br>07 |
| Q.5 | (a)<br>(b)      | What are assembly directives? Explain any three.  Differentiate between following instructions.  1. MOVX & MOVC  2. SJMP & LJMP  3. RR & RRC        | 07<br>07 |