

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 350301****Date: 10-05-2013****Subject Name: Microcontroller and Its Application in
Medical Instrumentation****Time: 10:30 am - 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.
4. English version is considered to be Authentic.

- Q.1** (a) Draw and Explain block diagram of microcontroller 8051 and its application. **07**
- (b) (I) Match list – I (mnemonics) with list – II (machine cycle). **04**

List – I

- A. PUSH Add
B. INC A
C. DIV AB
D. SWAP AB

List – II

- 1
4
1
2

03

(II) Fill in the blanks.

- (1) 8051 microcontroller is a _____ address line and _____ data line.
- (2) 8051 microcontroller is a _____ types of interrupts.
- (3) 8051 microcontroller is a _____ Timers and _____ flags.

- Q.2** (a) Draw and explain 8051 oscillator and clock circuit. **07**
- (b) Draw and explain internal RAM structure of 8051. **07**

OR

- (b) Explain the 8051 Flags and PSW. **07**

- Q.3** (a) Draw and explain internal Port 1 circuit. **07**
- (b) What are the meaning of stack and stack pointer. Explain with suitable example. **07**

OR

- Q.3** (a) What is SFR? Explain the TCON and TMOD in detail. **07**
- (b) Add the bytes in register R3 and R4. Put the result in RAM location 4AH (LSB) and 4BH (MSB). **07**

- Q.4** (a) What is interrupt? Discuss the types of interrupts. **07**
- (b) Explain the serial data modes of operation. **07**

OR

- Q.4** (a) Explain addressing modes of 8051 with suitable example. **07**
- (b) Which of the following intersection is valid or invalid? Why? **07**
- (A) MOV R3, #500
(B) MOV A, 255H
(C) MOV R1, #50
(D) MOV A, #F5H

- | | | | |
|------------|-----|---|-----------|
| Q.5 | (a) | (I) Difference between MOVX and MOVC. | 04 |
| | | (II) Explain the PUSH and POP with example. | 03 |
| | (b) | Draw and explain 4 X 4 matrix keyboard interfaces with 8051 and what are the advantages of using matrix keyboard? | 07 |
| OR | | | |
| Q.5 | (a) | Explain the Look up table method for 8051. | 07 |
| | (b) | Explain the seven segment display interfacing to 8051. | 07 |
