

GUJARAT TECHNOLOGICAL UNIVERSITY**DIPLOMA ENGINEERING - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 361704****Date: 30-05-2014****Subject Name: Micro Controllers****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) Explain internal memory organization of 8051 micro controller. **07**
 (b) Draw and explain pin diagram of 8051 in brief. **07**
- Q.2** (a) Explain different data transfer schemes. **07**
 (b) Write comparison of microcontroller and microprocessor with their basic block diagrams. **07**
- OR
- (b) Short questions (Any Four) **07**
1. What are the reasons for the success of microcontroller in varieties of applications?
 2. What is the purpose of general purpose registers?
 3. How program code is transferred to the microcontroller?
 4. How interrupts are enabled in microcontroller?
 5. Why pull-up resistors are necessary in port 0?
 6. Why lower order address and data lines are multiplexed?
- Q.3** (a) Explain following instruction. **07**
 (1) SWAPA (2) XCHD (3) DA A (4) CPLC
 (5) DJNZ (6) SETB 20H (7) SUBB A, #0FFH
 (b) Explain addressing modes of 8051 with example. **07**
- OR
- Q.3** (a) In what way the instruction SJMP, AJMP and LJMP are different? **07**
 (b) Explain AUTO RELOAD Timer mode of 8051 with neat sketch diagram and state its advantages. **07**
- Q.4** (a) Write result after execution of each instruction. **07**
1. CLR C
 MOV A, #5FH
 MOV R3, #24H
 SUBB A, R3
 2. MOV A, #39H
 ANL A, #0FH
 ORL A, #44H
- (b) Explain TMOD and TCON special function registers of 8051. **07**
- OR
- Q.4** (a) Write any two programs.(Any Two) **07**
1. Write a program to count the number of 1's in a given number in B. Store count in R0.
 2. Write a program to add two 16 bit numbers; the numbers are AC45h and B2CDh.
 3. Write a program to convert given HEX number into its equivalent BCD.
- (b) 1. Determine baud rate of serial port in mode 0 for a 10 Mhz crystal. **07**
 2. Calculate maximum and minimum time delay in timer in mode 1, if the

crystal is 12 Mhz.

- Q.5** (a) Draw interfacing diagram of 8051 with 8K RAM and 32K EPROM and explain it in brief. **07**
- (b) Explain interfacing of analog to digital convertor with 8051. **07**
- OR
- Q.5** (a) Explain serial data communication with SCON format. **07**
- (b) Explain interrupts in 8051 micro controller with their priority & vector address. **07**
