

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (OLD) EXAMINATION – WINTER 2018****Subject Code:151001****Date: 07/12/2018****Subject Name: Microcontroller And Interfacing****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.

- Q.1** (a) 1) Explain difference between microprocessor and microcontroller. **07**
 2) List selection criteria of microcontroller for an application.
- (b) Write operation of the following instructions **07**
 1] SWAP A [2] MOVX A,@DPTR [3] DIV AB [4] RR A
 [5] XCHD A,R1 [6] MOVC A,@A+DPTR 7) MOV A,30H
- Q.2** (a) List different addressing modes of programming instruction of 8051 microprocessor. Also explain them with a suitable example. **07**
- (b) Write a Assembly program to multiply two 16-bit numbers for 8051 controller. **07**
- OR**
- (b) Write a program to transfer block of 10 data from internal memory locations to External memory locations for 8051 controller. **07**
- Q.3** (a) A switch is connected to P1.7. Write a program to check the status of switch and perform the following. **07**
 1. if switch = 0, send letter “N” to P2.
 2. if switch = 1, send letter “Y” to P2.
- (b) Write difference between ACALL and LCALL instruction with example. **07**
- OR**
- Q.3** (a) 20 bytes are stored in memory location starting from address 100H. Write a program to count the number of even, odd and zero number. **07**
- (b) Explain difference between polling and interrupt. List types of interrupts and also give its priority for execution. **07**
- Q.4** (a) Describe TMOD and TCON Special Function registers. **07**
- (b) Explain Serial Communication. How it will perform using 8051/52 Controller with PC? Explain it with program and diagram. **07**
- OR**
- Q.4** (a) Write an 8051 C program to generate 5 KHz pulse waveform of 50% duty cycle on pin 1.0 using timer-1 in mode-2. **07**
- (b) Write a C program to transfer the message “Gujarat Technological University” serially at 9600 baud, 8-bit data, 1 stop bit. Perform this program for 255 times. **07**
- Q.5** (a) Draw and explain interfacing of 4K bytes External RAM and 16K bytes of ROM with 8051 microcontroller. **07**
- (b) Explain interacting of 8 bit ADC with 8051. **07**
- OR**
- Q.5** (a) Draw interface of LCD with 8051. Also write a program to display “Happy” on the first line and “Diwali” on the second line of the LCD. **07**
- (b) Draw and explain interfacing of RTC with 8051 microcontroller. **07**
