

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII EXAMINATION – SUMMER 2016****Subject Code:172001****Date:16/05/2016****Subject Name:Microcontrollers and Embedded Systems****Time:02:30 PM to 05:00 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) Interface a DC motor with Atmel 8051. What is PWM? **07**
 (b) Interface LEDs with PORTB of PIC18f452. What do you mean by current sourcing & current sinking? **07**
- Q.2** (a) What is checksum-byte? Why is checksum operation performed & how? Write a C program to find checksum-byte of data 0x25,0x35,0x45,0x55,0x65. **07**
 (b) Write a C program to rotate stepper motor interfaced with 8051 in clockwise direction. **07**
- OR**
- (b) A switch is connected to P2.3. Write a C program to generate 25% duty cycle on P2.5 if sw=1 & if sw=0; generate 75% duty cycle on P2.7. **07**
- Q.3** (a) Draw & explain the programming model of PIC18f452. **07**
 (b) Explain the use of stack in PIC18F452 with an example. **07**
- OR**
- Q.3** (a) Explain PIC18f452 instructions related to logic operations. **07**
 (b) Explain the bit configuration of SFRs INTCON1 & PIR1. **07**
- Q.4** (a) Write a C program to display “GTU” on a generalized LCD. **07**
 (b) Explain data framing protocol & SBUF register. **07**
- OR**
- Q.4** (a) Write a C program to toggle P1 port with 500ms delay. Use timer1. **07**
 (b) Explain the different interrupts in 8051 & IE register. **07**
- Q.5** (a) Write an ALP for PIC18f452 to find the sum of an array of 10 data stored at addresses starting from 40h. **07**
 (b) Which are the bit-oriented operations performed in PIC18f452? **07**
- OR**
- Q.5** (a) Explain the PIC18f452 instructions related to branching operations. **07**
 (b) How can we copy bytes between program memory & data memory in PIC18f452? **07**
