

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2172001**Date:18/11/2016****Subject Name:Microcontrollers and Embedded Systems****Time:10.30 AM to 1.00 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 DAC0808 with 8051 microcontroller. **07**
 (b) Explain the PIC18F stack & stack operation. **07**
- Q.2** (a) List & explain the special features of PIC18F452. **07**
 (b) Differentiate between: (i) Von-Neuman vs Harvard architecture **07**
 (ii) RISC vs CISC architecture
- OR**
- (b) Explain the various challenges faced in embedded system design. **07**
- Q.3** (a) Write a C program to rotate DC motor in clockwise direction at 66% PWM for 8051. **07**
 (b) Explain the instructions related to table read/write operation in PIC18F452. **07**
- OR**
- Q.3** (a) Write a conversion routine in C for ADC0804 interfaced to 8051 microcontroller. **07**
 (b) Describe the bit pattern of IPR1 & PIE1 registers of PIC18F452. **07**
- Q.4** (a) Explain RS-232 connections to Atmel 8051. **07**
 (b) Write a C program to increment P1 port every 0.5 second. Use Timer 1 to generate delay. XTAL=24MHz. **07**
- OR**
- Q.4** (a) Describe the bit patterns of TCON & SCON registers of 8051 microcontroller. **07**
 (b) Write a C program using interrupts to count pulses on T0 pin & display it on P2 port while continuously transmitting letter Y at 56kbps. XTAL=11.0592MHz. **07**
- Q.5** (a) A set of 50 marks are stored starting at address 20H in Access bank of PIC18F452 microcontroller. Write an ALP to find the highest mark entry. **07**
 (b) Interface 7segment LEDs with PIC18f452. **07**
- OR**
- Q.5** (a) Write an ALP to copy a block of 10 bytes of data starting at address 40H to 60H of PIC18F452 microcontroller. **07**
 (b) Draw an interfacing circuit of 8x8 matrix keyboard with 8051. Also draw flowchart of the process. **07**
