

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2016****Subject Code:2150907****Date:06/05/2016****Subject Name:Microprocessor and Microcontroller Architecture & Interfacing****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) Discuss the internal RAM structure of 8051. Explain SFR space in detail. **07**
 (b) What are the addressing modes for 8051? Explain in brief giving suitable example. **07**
- Q.2** (a) Explain the function of following pins in 8085. **07**
 SOD, HLDA, READY & TRAP.
 (b) Explain the programming model of 8085. State the purpose of temporary register W & Z. **07**
- OR**
- (b) Draw & explain the physical port structure and also list the alternate functions of all the ports of 8051. **07**
- Q.3** (a) Write a 'C' program to find average of 10 numbers stored in external memory & store the result in register R2. **07**
 (b) With the help of diagram show how de-multiplexing of address/data lines $\overline{AD0-AD7}$ can be achieved? Also explain the generation of control signals \overline{MEMW} , \overline{MEMR} , IOR & IOW. **07**
- OR**
- Q.3** (a) Write a 'C' program to generate a square wave of frequency 10 KHz on P1.2 **07**
 (b) Explain all the bits of TMOD register & hence find the control word for selecting timer 0 in mode 2. **07**
- Q.4** (a) Explain the special function registers SCON & SBUF in 8051 serial communication. **07**
 (b) Write an assembly program to add two 16 bit numbers. **07**
- OR**
- Q.4** (a) What are the interrupts available in 8051? What is the default priority & how it can be changed? **07**
 (b) Why C programming is preferred to assembly programming? What are the data types available in C? **07**
- Q.5** (a) With the help of diagram explain the interfacing of seven segment display with 8051. **07**
 (b) Differentiate between SJMP & LJMP, RET & RETI, MOVX & MOVC. **07**
- OR**
- Q.5** (a) Write a short note on different types of memory. **07**
 (b) Compare Von-Neumann & Harvard architecture, CISC & RISC processors. **07**
