

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3160914****Date:04-07-2023****Subject Name:Microprocessors and Microcontrollers****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.
4. Simple and non-programmable scientific calculators are allowed

MARKS

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|------------|---|--|
| Q.1 | (a) Give answer to below questions (1) Which machine cycles are used to execute the instruction MOV B, M ? (2) The addressing mode of MOV A, @R ₁ instruction is _____. (3) Which timer and mode are used for serial communication? (b) List out differences between Microprocessor & Microcontroller. (c) Draw the architecture block diagram of 8085 and explain flag register in detail. | 03 04 07 |
| Q.2 | (a) Describe the function of following pins of 8085 (1) INTA (2) ALE (3) Reset IN (b) List out the differences between RISC & CISC architecture. (c) Draw and explain the timing diagram of MOV M, D instruction of 8085. <div style="text-align: center;">OR</div> (c) What is multiplexing? Explain multiplexing for address and data bus for 8085 microprocessors with neat diagram. | 03 04 07 07 |
| Q.3 | (a) Explain the difference among MOV, MOVC and MOVX instructions. (b) Draw the TMOD register and write down the steps to program one of the timers in mode1 for generating specific time delay. (c) Write a program to generate 50Hz frequency signal on Pin 2.3 with the crystal frequency of 11.0592MHz using Timer 0. | 03 04 07 |
| | OR | |
| Q.3 | (a) Explain PSW register of 8051 in detail. (b) List out different conditional jump instructions and explain any two with example. (c) Write a program to find maximum number from a block of five, 8-bit numbers stored from the memory location 30h and store the result at 40h memory location.. | 03 04 07 |
| Q.4 | (a) Explain the difference between RLC A & RRC A instruction. (b) List out different assembler directives and explain any two in detail. (c) Write an assembly language program to convert 8-bit two-digit BCD number system into hexadecimal number system. | 03 04 07 |
| | OR | |
| Q.4 | (a) What is the use of SMOD bit in PCON register? (b) Draw and explain SCON register for serial communication. (c) Write a C program to generate a ramp waveform at port P1 using software delay. | 03 04 07 |

- Q.5** (a) What is the use of Interrupt priority (IP) register? How one can change the interrupt priority? **03**
- (b) What is the use of MAX232 IC in serial communication? Explain the difference between MAX232 and MAX233 IC. **04**
- (c) Draw and explain the interfacing of common anode 7 segment display with 8051. **07**

OR

- Q.5** (a) Draw and explain each bit of Current program status register of ARM processor. **03**
- (b) Interface matrix keyboard with 8051. **04**
- (c) Write a program to transmit a message “Best of Luck” serially at 9600 baud rate continuously using serial communication. Crystal Frequency :-11.0952MHz. **07**
