

[This question paper contains 4 printed pages.]

1015

Your Roll No.

B.Sc. (Hons.) / III

C

ELECTRONICS - Paper 3.1(XV)

(Microprocessors and Micro-computer Technology)

Time: 3 Hours

Maximum Marks: 38

*(Write your Roll No. on the top immediately
on receipt of this question paper.)*

*Attempt **five** questions in all, including
Question No. 1 which is compulsory.*

1. Do any **five**, each carry equal marks :

(a) Explain why a Latch is used for an output port,
but a tri-state buffer can be used for an input
port.

(b) Specify the number of times the following Loops
are executed.

(i) ORAA
 MVI B, 64H
 LOOP: DCR B
 JNC LOOP

P.T.O.

(ii) MVI A, 17H

LOOP: ORA A

RRC

JNC LOOP

(c) Explain the instructions EI and DI in the 8085 interrupt process.

(d) What is function of DAA instruction? Specify the contents of accumulator after execution of the following instructions

MVI A, 49H

ADI 01H

DAA

(e) Write the instructions to set up the 8155 timer in mode 3 with count 3FF8H.

(f) If a physical branch address is 5A230 when (CS) = 5200, what will it be if the (CS) are changed to 7800? (2×5=10)

2. (a) What is absolute and linear scale decoding? If an output and input port can have the same 8-bit address, how does the 8085 differentiate between the ports? (2)

- (b) In a memory mapped I/O how does the microprocessor differentiate between an I/O and memory? Can an I/O have the same address as a memory register? (2)
- (c) Explain and draw the machine cycle of instruction MVI A, 32H which is stored at location 2000H & 2001H respectively. (3)
3. (a) What are the addressing modes of following instructions.
- (i) STAX B
 - (ii) RAR
 - (iii) JMP 2050H
 - (iv) ADC C (2)
- (b) Explain instructions LHLD and POP PSW. (2)
- (c) A string of six data bytes is stored starting from memory location 2050H. The string includes some blanks. Write a program to eliminate the blanks from string. (3)
4. (a) Write a program to generate a square wave with period of 400 μ s. Use bit D0 to output the square wave. Show your calculation. Assume the system clock period is 325 ns. (4)

- (b) Registers BC contain 9537H and registers DE contain 62A5H. Write instructions to subtract the contents of BC from DE and place the result in BC. Specify the contents of BC after execution of program. (3)
5. (a) Write down sequence of events which occurs as instruction CALL is executed? (4)
- (b) Write a program to convert 2-digit BCD to binary number? (3)
6. (a) Specify the handshake signals for Port B of the 8255. If Port B is connected as an input port in the interrupt mode. Explain the function of each handshake signal. (3)
- (b) Explain the instructions SIM and RIM. (3)
- (c) Can the microprocessor be interrupted again before the completion of the first interrupt service routine? (1)
- (a) What are the functions performed by Programmable Keyboard Display interface? What is significance of FIFO RAM in 8279? (3)
- (b) Explain features of serial bus interface standards. (2)
- (c) What are parallel processing and coprocessing in 8086 microprocessor? (2)