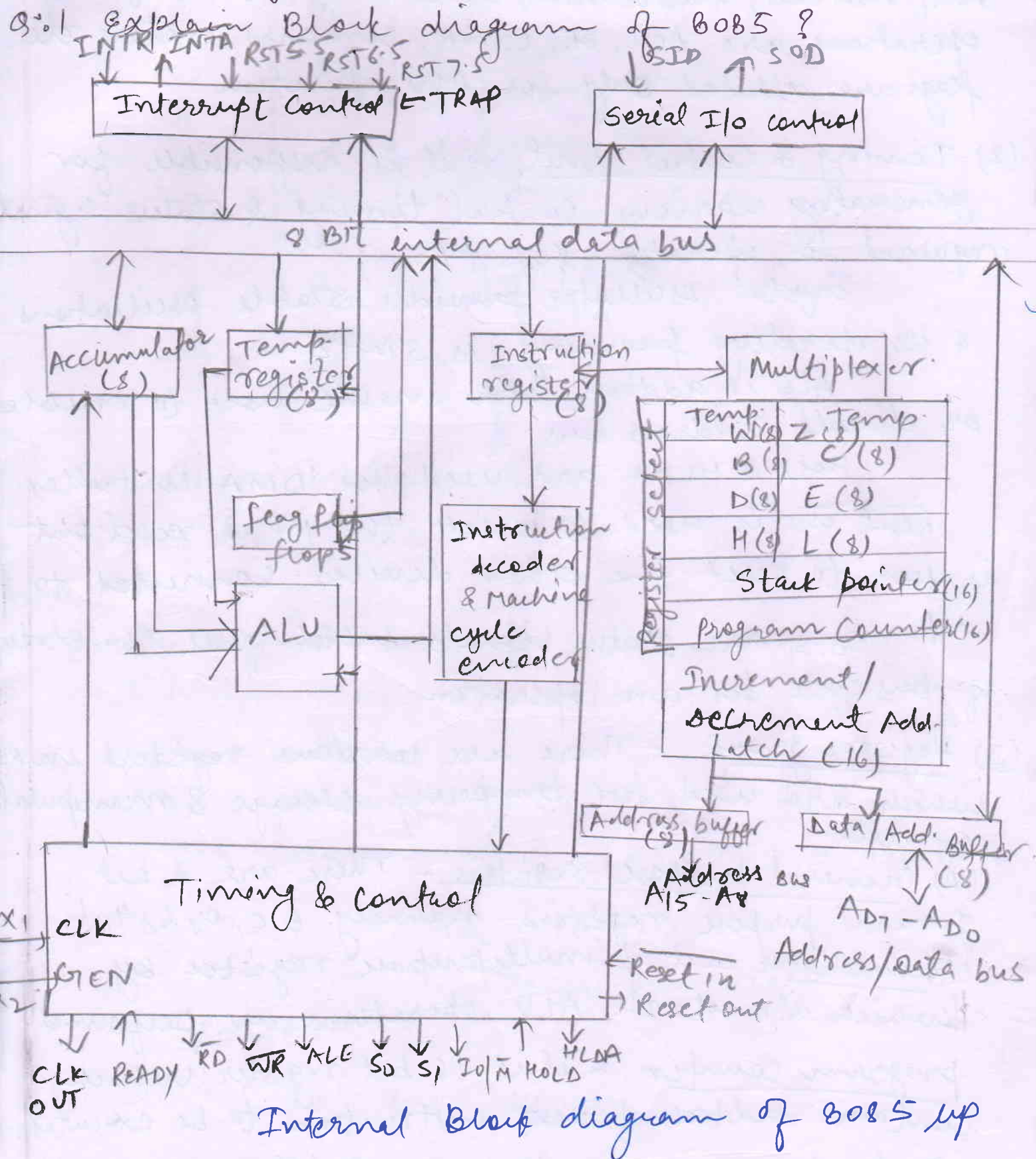


# MODEL TEST PAPER

SUB CODE: 207

EL-II year

Attempt any 3 Questions.



Its construction can be divided into - ~~parts~~

(1) Arithmetic logic unit → it is a combination of accumulator, temporary register & arithmetic & logic circuits. Various arithmetic operation in 8085 are Add, subtract, increment, decrement etc. & logic operations are AND, OR, EX-OR, compare, rotate etc. flags are affected only for ALU operation.

(2) Timing & Control unit: - it is responsible for generating various control timing & status signals required for operation of  $\mu P$ .

Crystal oscillator provides stable oscillations & its operating frequency is 3 MHz

ALE is address latch enable used to enable or disable address bus.

HOLD & HLDA are used for DMA controller.

Reset in is used to reset the  $\mu P$  & reset out is used to reset the other devices connected to  $\mu P$ .

$S_0, S_1$  are status signals which give the status of bus cycle for an operation

(3) Register group: - There are various registers in 8085 which are used for temporary storage & manipulation of data.

(A) General purpose registers - There are 8 bit general purpose registers namely B, C, D, E, H, L

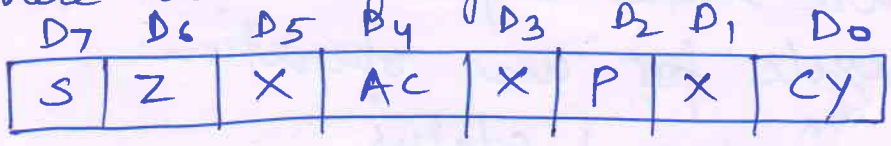
Accumulator - it is multipurpose register by which almost all ALU operations are performed.

Program counter: - it is 16 bit register which contains address of next instruction to be executed.

Instruction register: - it is an 8 bit register which contains opcode of present instruction

Q:2 explain the flag registers of 8085  $\mu p$ ?

Ans:- There are 5 flags in 8085



- S = Sign
- Z  $\rightarrow$  zero
- AC - Auxillary carry
- P - parity
- CY  $\rightarrow$  carry
- X  $\rightarrow$  Ignore

As they result for most of ALU operation

(1) Sign flag  $\Rightarrow$  S  $\rightarrow$  1  $\Rightarrow$  -ve result } According to D<sub>7</sub> bit of Accumulator  
in signed operation S  $\rightarrow$  0  $\Rightarrow$  +ve result

(2) zero flag : Z  $\rightarrow$  1; if result in A  $\geq$  00H  
0; otherwise

(3) Auxillary carry :- AC = 1; if a carry transfer from D<sub>3</sub> to D<sub>4</sub>  
Lower nibble  $\xrightarrow{\text{Carry}}$  Higher nibble  
= 0; otherwise

(4) parity flag :- P = 1; if no. of 1's in ACC is even  
= 0; if no of 1's in A is odd

(5) carry flag :- CY = 1; if there is carry out of D<sub>7</sub> bit  
= 0; otherwise

Q:3 Describe the meaning of  $S_0$  &  $S_1$  in  $\text{8085}$ ?  
 Ans:-  $S_0$  &  $S_1$  are status signals which gives the status of bus cycle for an operation.

$I_0/\bar{M}$	$S_0$	$S_1$	Status
Z	0	0	Halt
0	0	1	mem. write
0	1	0	mem. Read
0	1	1	fetch
1	0	1	I/O write
1	1	0	I/O read
1	1	1	INTA
Z	X	X	HOLD
Z	X	X	RESET

Z  $\rightarrow$  High impedance state.

X  $\rightarrow$  don't care

Q:4

(A) Subtraction using 2's complement

Subtract 1011 from 10101

$$10101 - 1011$$

1's complement of 1011  $\rightarrow$  10100

2's complement  $\rightarrow$  10100 + 1 = 10101

$$10101 + 10101 = 101010$$

Ignore the carry

Result  $\rightarrow$  01010

(B) Convert 125 into binary

2	125	1 ← LSB
2	62	0
2	31	1
2	15	1
2	7	1
2	3	1
2	1	1 ← MSB
	0	

$$(125)_{10} = (1111101)_2$$



(C) Convert  $(11010.011)_2$  into decimal?

$$\begin{array}{cccccccc} \text{weight} & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & \cdot & 2^{-1} & 2^{-2} & 2^{-3} \\ & 1 & 1 & 0 & 1 & 0 & & 0 & 1 & 1 \end{array}$$

$$1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0 + 0 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-3}$$

$$(11010.011)_2 \rightarrow (26.375)_{10}$$

(D) Convert  $(2A6)_{16}$  into decimal?

$$\begin{array}{ccc} 2 & A & 6 \\ \text{weightage} & 16^2 & 16^1 & 16^0 \end{array}$$

$$(2A6)_{16} \rightarrow 6 \times 16^0 + 10 \times 16^1 + 2 \times 16^2$$

$$(2A6)_{16} = (678)_{10}$$

(E) Convert  $1011.01101$  into octal?

$$\begin{array}{ccccccc} 0 & 0 & 1 & 0 & 1 & 1 & \cdot & 0 & 1 & 1 & 0 & 1 & 0 \\ \hline & \underbrace{\hspace{1.5cm}} & \underbrace{\hspace{1.5cm}} & & \underbrace{\hspace{1.5cm}} & \underbrace{\hspace{1.5cm}} & & & & & & & \end{array}$$

$$(1011.01101)_2 = (13.32)_8$$

सही  
हीराकि विमल