Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 3413 Roll No.

B. Teach. Examination 2016-2017

(Fifth Semester)

MICRO PROCESSORS

Time : 3 Hours] *[Maximum Marks : 100*

Note :– Attempt all questions. All questions carry equal marks.

1. Attempt any four parts of the following : 5×4=20

(a) (i) Explain the function of ALE and IO/$\overline{M}$ of 8085.

(ii) MVI A, 10 H

MVI B, 10H

Loop : ADD B

RLC

JNC LOOP

HLT

How many time loops will execute?

(b) Explain the function of the following 8085 instructions with suitable examples :

(i) CMPM

(ii) DAA

(c) Give the format of flag register in 8085. Explain each flag.

(d) Draw thefunctional block diagram of microprocessor 8085 and explain in brief.

(e) Write the ALP for BCD subtraction.

(f) What operation can be performed by using the instruction XRA A (Exclusive - OR the contents of the accumulator with itself. Specify the status of Z and C Y.

2. Attempt any four parts of the following: 5×4=20

(a) Design a memory system for the 8085 micro processor such that it should contain 8K byte of EPROM and 8k bytes of RAM.

(b) Load the bit pattern 91H in register B and 87H in register C. If DO is at logic 1 in both registers, turn on the light connected to the DO position of output port 0/H, otherwise, turn off the light.

(c) Write the difference between I/O, mapped I/O and memory mapped I/O.

(d) How instruction cycle, machine cycle, clock cycle and T-states are related to each other? Explain them with proper sketches? Draw the MOV A, B instruction cycle timing diagram.

(e) Write a ALP for 8085 micro processor to transfer ten bytes of data from one memory to another memory block. Source memory block starts from memory location 2200H where as destination memory block starts from memory location 2300H.

(f) Explain the need to demultiplex AD_1-AD_0 with neat diagram.

3. Attempt any two parts of the following : 10×2=20

(a) What is basic difference between 8253 and 8254 timer counters? How 10 KHz square wave can be generated with 1 NHz frequency connected to counter1?

(b) What is the need of DNA in microprocessor applications? Explain the architecture and various modes of operation of a programmable DNA controller 8257.

(c) (i) Draw the 8255 control word format in the BSR mode and IO mode.

(ii) Identify the mode O control used to configure port A and port Cu as output ports and port B and port C_L as input ports. Also write a program to read DIP switches and display the reading from port B at port A and from port C_L at Port Cu. Assume the part addresses are as follows:

Port A = 8000 H

Port B = 8001 H

Port C = 8002 H

Control Register= 8003 H

4. Attempt any two parts of the following : 10×2=20

(a) Explain the concept of segmented memory. Explain the physical address formation in 8086. Also explain the function of the following pins in 8086:

$\overline{TEST}$, MN/$\overline{MX}$

(b) Explain various data addressing modes of 8086 with the help of examples.

(c) Sketch block diagram showing basic 8086 minimum mode system. Explain functions of 8282 latches, 8286 transceiver and 8284 clock generator.

5. Attempt any two parts of the following : 10×2=20

(a) With the help of an example describe the action performed by microprocessor 8086 for each of the following instructions :

(i) AAM

(ii) CMPSB

(iii) IMUL

(iv) ROL

(v) XCHG

(b) What is function of assembler directives? Explain some 8086 directives in detail with suitable examples.

(c) (i) Write an 8086 ALP to take average of two number and put the result in the memory location.

(ii) Explain the structure of macro with the help of example. Also give the comparison between procedure and macro.

⌘⌘⌘