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

(a) Explain various data transfer modes supported by 8237 DMA controller.

(b) With the help of block diagram explain the operation of 8255 (PPI) in detail.

(c) Explain the following terms related to serial communication :

(i) Simplex

(ii) Full duplex

(iii) Baud-rate

(iv) Data frame for asynchronous data transfer.

Printed Pages—4 **EEC406**

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

PAPER ID : 0106 **Roll No.**

B. Tech.

(SEM. IV) THEORY EXAMINATION 2011-12

INTRODUCTION TO MICROPROCESSOR

Time : 3 Hours *Total Marks : 100*

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

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

(a) What is an assembler ? Discuss the difference between a compiler and an interpreter.

(b) What is addressing mode ? Explain the types of the addressing modes of 8085.

(c) Explain the memory map of 1 K (1024 × 8) memory shown in figure and explain the changes in the memory map, if the hardware of the $\overline{CS}$ line is modified.

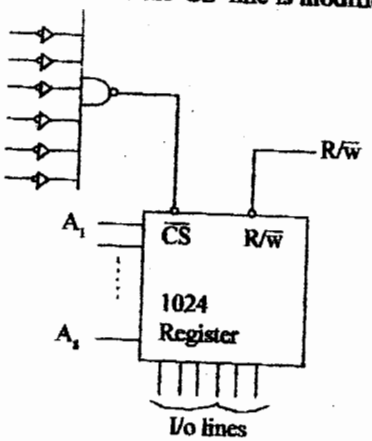

Fig. 1

(d) What is the function of accumulator ? Why are the program counter and the stack pointers 16 bit registers in 8085 ?

(e) Why the interfacing devices used ? And give the examples of interfacing devices.

(f) Explain 4 to 16 decoder with the help of suitable diagram and notations.

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

(a) Explain the decoding logic and the memory map of the 8155 shown in fig. 2.

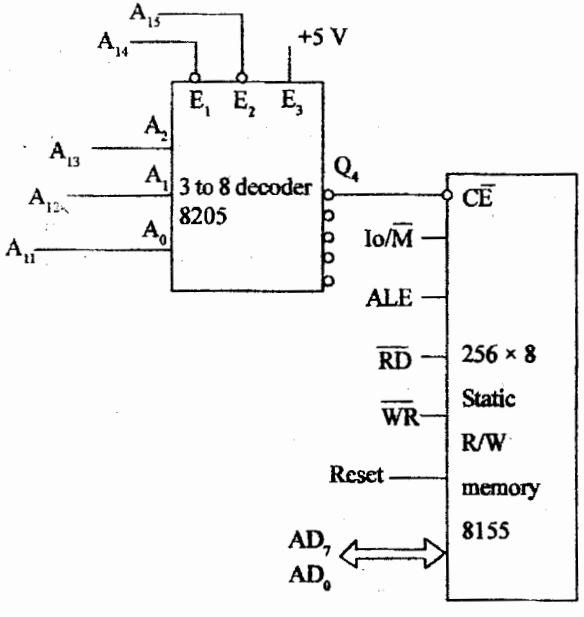

Fig. 2

(b) What is the concept of interrupt and which interrupts are used in 8085 ? Show the diagram.

(c) The instruction MOV C, A (Code 4FH) is stored at memory location 2005 H. The accumulator has data byte 7 AH. Illustrate the execution of the instruction and calculate the execution time if the system clock frequency is 2 MHz.

(d) Define opcode and operand and specify the opcode and operand in the instruction MVI A, 28 H.

(e) Add the number 35 H directly to the sum in the contents of the accumulator are 93 H and contents of register C are B7H, when CY flag is set, ADI 35 H.

(f) Draw the block diagram of 8085 based micro computer.

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

(a) What is the memory segmentation in 8086 ? Explain the advantages of segmentation.

(b) If BX = 0158 H Displacement = 1B57H
DI = 10A5H DS = 2100H
and DS is used as segment register, then calculate EA and PA produced for all various addressing modes in 8086.

(c) Explain type 0, 1, 2 interrupts found in the interrupt vector table of 8086 microprocessor.

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

(a) What do you mean by assembler directive ? Explain with example all the directives.

(b) Write an assembly language program to generate a delay of 1 sec using a microprocessor running at 5 Hz. Also show the delay calculations.

(c) What is subroutine ? Explain the concept of subroutine in main program.