(c) Highlight the architectural/functionals differences between 80286, 80386 and 80486 versions.

7. Attempt any two parts : 5x2=10

(a) Elaborate 8085 instruction RIM and its significance.

(b) Draw and briefly explain the architecture of 8251 USART.

(c) Compare and contrast peripheral mapped I/O and memory mapped I/O in reference to 8085.

●●

No. of Printed Pages : 06

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

PAPER ID : 23208 Roll No.

B.Tech Examination 2017-18

(Fifth Semester)

MICROPROCESSOR AND INTERFACING

Time **: Three Hours]** **[*Maximum Marks* : 60**

Note :– (i) Attempt all the questions.

(ii) Consider suitable data value/address etc. if not provided.

(iii) Consider standard values where not specified like T states, instruction size etc.

SECTION 'A'

1. Attempt all the parts : 8x1=8

(a) Enlist the architectural advancements of microprocessors to enhance its performance.

(b) Differentiate between CALL and JMP instructions.

(c) Draw the memory heirarchy (in terms of size and accessing speed) in a system.

(d) Compare top-down and bottom-up designing.

(e) Draw the memory read timing diagram of 8085.

(f) Explain the execution of 8085 instruction XCHG.

(g) Draw the programming model of 8086.

(h) Obtain total required number of address lines to implement total of 1 M Byte memory, by using only chips of size 256Kx4.

SECTION 'B'

2. Attempt any two parts of the following : 2x6=12

(a) Explain DMA mechanism. Discuss about 8237 DMA controller and elaborate its control word.

(b) For the following code segment obtain the content of PC, SP and each register, after its execution :

(Consider initially PC = 2000H)

```
LXI   SP,   FFABM   ;
LXI   B,    FABCM   ;
LXI   D,    DADAM   ;
PUSH  B             ;
POP   H             ;
INX   H             ;
PUSH  D             ;
XRA   A             ;
INR   B             ;
ADD   E             ;
MOV   C,A           ;
HLT
```


(c) Draw 8086 internal architecture and briefly explain it. Elaborate pipelining and its significance.

(d) Write an 8085 assembly language program to count continuously in hexadecimal from FF_H to OO_H (down counter) in a system with external crystal oscillator frequncy 4 MHz. Use register C to setup a one MS delay between each count and display the count value at the part with address $B8_H$.

SECTION 'C'

Note : Attempt all the parts in this section : 10x4=40

3. Attempt any two parts :

   (a) Compare and contrast between MACRO and Procedure.

   (b) Identify the addressing mode in the following 8085 instructions :

      (i) XCHE

      (ii) LDA 2500_H

      (iii) STAXB

      (iv) LHLD $2FOO_H$

   (c) Elaborate about Rs. 232 standard and its utility.

4. Explain 8086 pin diagram and also elaborate its modes of operation. 10

Or

Draw and explain the architecture of 8085. Also elaborate the significance of accumulator.

5. Attempt any two parts : 5x2=10

   (a) Elaborate interrupt mechanism and ISR. Explain the software interrupt of 8085 and their utility.

   (b) Write an 8085 program to obtain the 2's compliment of an 8 bit number stored on 2050_H location. Store the result at the next location.

   (c) Elaborate assembles directives with suitable examples. State why they are referred as 'pseudo code'.

6. Attempt any two parts : 5x2=10

   (a) Elaborate what can be the maximum memory size in a 8086 based system. Discuss memory segmentation and its significance.

   (b) Elaborate the execution of following 8086 instructions :

      (i) MOV CL, [BX];

      (ii) MOV AX, $FACD_H$;

      (iii) ROL AL, BL;

      (iv) MUL BL;