

1. Draw the diagram for the Internal Architecture of 8086 Microprocessor. [0.5 Mark]
2. Describe the function of the prefetch queue. [0.5 Mark]
3. Identify the addressing mode and explain your answer: [2 Mark]
 - a. MOV [5678H], [9ABC]
 - b. MOV [BX], DX
 - c. MOV AX, [SI + DI + 2000H]
 - d. MOV CX, [SI]
 - e. IN 2000H, DX where 2000H is an I/O port number
4. Suppose AX contains FFF0H and BX contains 2000H. [2 Mark]

Find the values of the SF, PF, ZF, CF, OF and AF flags after the instruction ADD AX, BX is executed. Provide proper reasoning behind your answer.

5. Convert the following assembly language instructions into their corresponding machine codes. Show all workings: [2 Mark]
 - a. MOV AX, [1234H]
 - b. MOV 5678H [DI], CL
 - c. MOV DX, CX
 - d. MOV CX, [BP + BX + 3000H]
6. Convert 8B5475h from machine language to its corresponding assembly language instruction. Show all of your workings. [2 Mark]
7. Convert 8BD0 from machine language to its corresponding assembly language instruction. Show all of your workings. [1 Mark]