

- 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]**