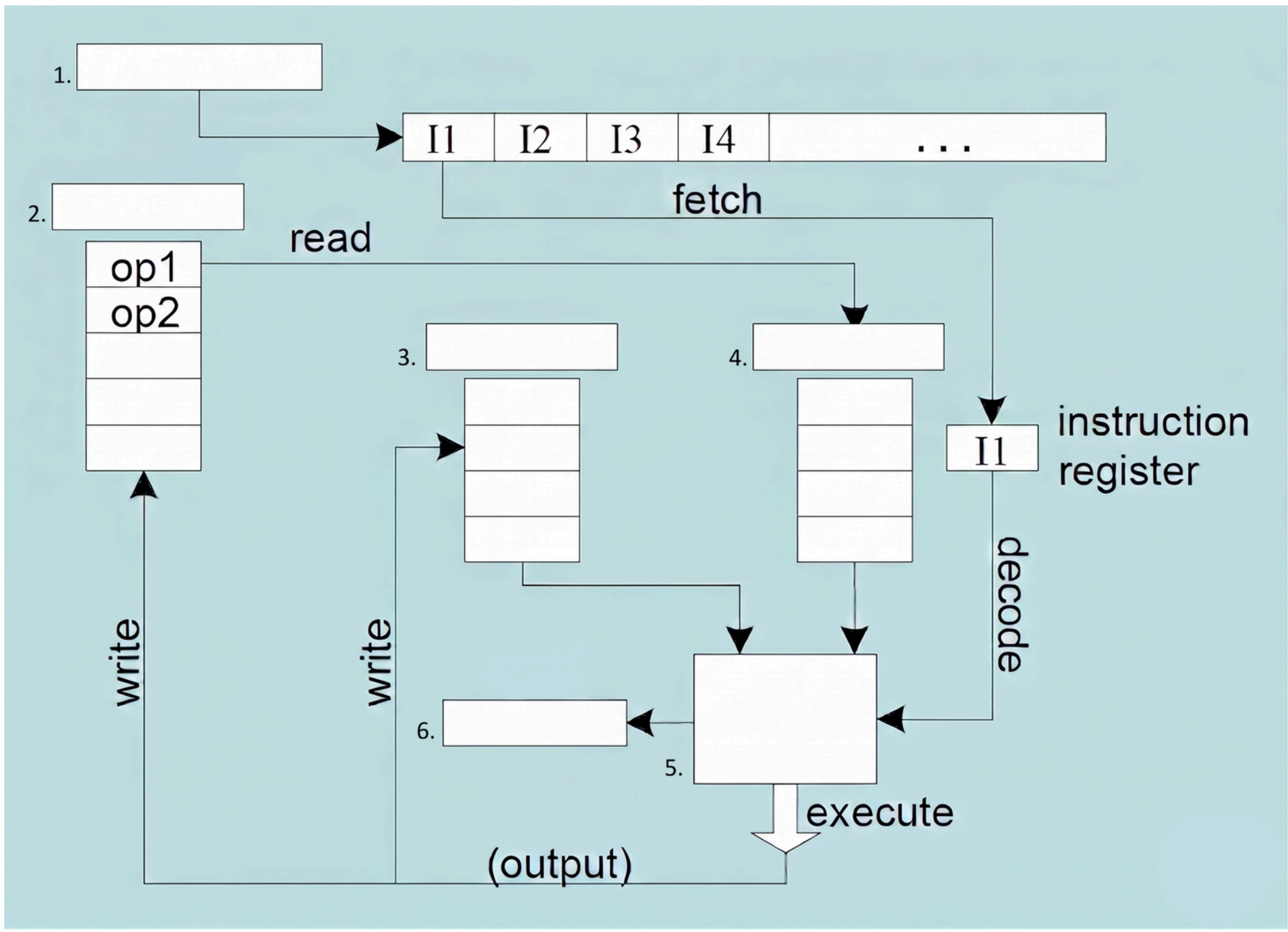
CS221 Mid 472

Q1- True or False: [4 marks]

1) Assembly language programs are portable.	
2) High-Level languages requires more instructions than Assembly language.	
3) An Assembly instruction corresponds to multiple machine language instructions.	
4) Assembly language programs execute faster than High-Level languages programs.	
5) Accessing memory is faster than accessing registers.	
6) Registers are located inside the CPU.	
7) Accessing registers is slower than accessing memory.	
8) Assembly language allows direct use of CPU registers.	

Q2- Complete with the following: [3 marks]

(memory, register, flags, program, register, ALU)



Q3- Declare the following variables. [3 marks]

Q#	Requirements
3.a	Declare an array (myarray) of double words that consists of: 9, 7, 4, 5, 5, 5, 5, 3 (use DUP)
Answer ->	
3.b	Define a message With these sentences: “This is CS221 Mid term” “It has 25 marks” “Its time is 1 hour”
Answer ->	

Q4- Give the offset of each variable. [3 marks]

```
.DATA Name Offset
   Var1 WORD 4
   Var2 BYTE “CS221”, 0
   Var3 DWORD 3 DUP(1)
```

ملاحظة: Var2 تم تعديله وسط الاختبار للصيغة الحالية
لكنه كان مكتوب بمسافة بالوسط “CS 221”.

Name	Offset
Var1	
Var2	
Var3	

Q5- Write the value of ax after executing the followning. [1 marks]

Instructions	Answer
mov bl, 8Fh movzx ax, bl	

Q6- Give the registers value for the following. [4 marks]

```
Var1 DWORD 1          ; address 00403500h
Var2 WORD 5
Var3 BYTE 9
List WORD 9, 10, 15, 13
; ----------------------------------------
mov eax, LENGTHOF List    ; eax =
mov ebx, TYPE Var1        ; ebx =
mov ecx, SIZEOF List      ; ecx =
mov edx, OFFSET Var3      ; edx =
```

Q7- Give the values of the following variables. [2 marks]

Q#	Requirements
7.a	Array1 WORD 10, 3 DUP(O), 20, 2 DUP(?)
Answer ->	
7.b	Array2 BYTE 2 DUP(2 DUP(*), 3 DUP(@))
Answer ->	

Q8- Write an assembly code satisfty the following. [5 marks]

- Define three variables var1, var2 and var3 with the type WORD having respectively the following values: 10h, 40h and 20h. Define a fourth variable called result that is not initialized.
- Complete the code to have this result: result = (var1 * var2) - var3
- Display the final values of the registers

```
.data



.code
main PROC




exit
main ENDP
end main
```

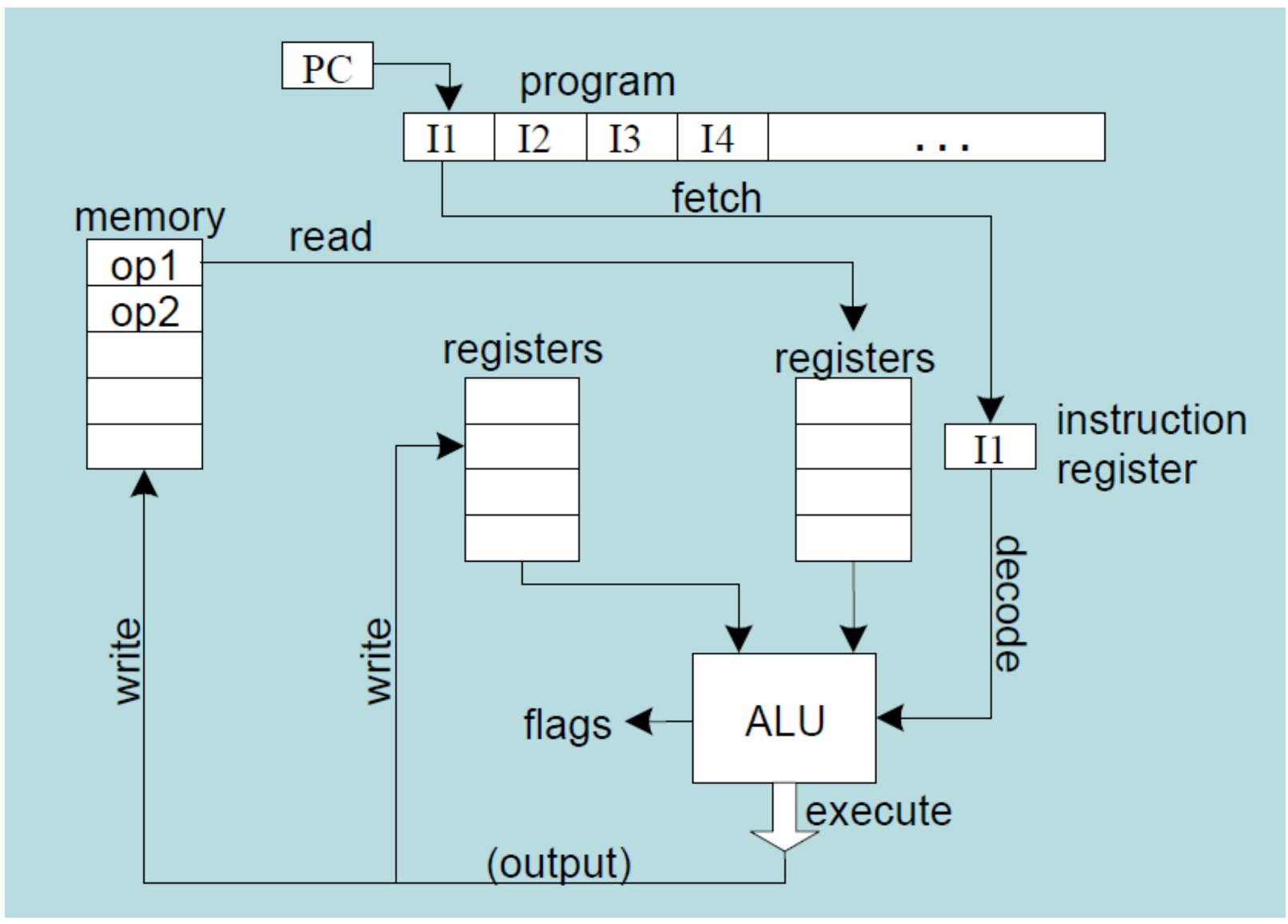
Answers are on the next page

Answers

Question 1 answer:

1	F	**5**	F
2	F	**6**	T
3	F	**7**	F
4	T	**8**	T

Question 2 answer:



Question 3 answer:

Q#	Answers
3.a	**array DWORD 9, 7, 4, 4 DUP(5), 3**
3.b	**msg BYTE “This is CS221 Mid term”, 0Ah, 0Dh, “It has 25 marks”, 0Ah, 0Dh, “Its time is 1 hour”, 0**

Question 4 answer:

Name	Offset
Var1	0
Var2	2
Var3	8 الإجابة قبل تعديل السؤال: 9

Question 5 answer:

Instructions	Answer
mov bl, 8Fh **movzx ax, bl**	**008Fh**

Question 6 answer:

Register	Value
eax	4
ebx	4
ecx	8
edx	00403506h

Question 7 answer:

Q#	Answers
7.a	**10, 0, 0, 0, 20, ?, ?**
7.b	**“**@@@**@@@”**

Question 8 answer:

```
.data
var1 WORD 10h
var2 WORD 40h
var3 WORD 20h
result WORD ?

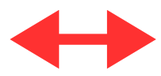
.code
main PROC

mov ax, var1        ; ax = var1
mul var2            ; ax = var1 * var2
sub ax, var3        ; ax = ax - var3

mov result, ax      ; result = ax

call DumpRegs       ; Display all registers


exit
main ENDP
END main
```



Another solution	
mov ax, var1	; ax = var1
mov bx, var2	; bx = var2
mul bx	; ax = var1 * var2
sub ax, var3	; ax = ax - var3