THI Kiến trúc máy tính và hợp ngữ (Thi Chung)

Bắt đầu vào lúc	Monday, 28 May 2018, 1:10 PM
State	Finished
Kết thúc lúc	Monday, 28 May 2018, 2:14 PM
Thời gian thực hiện	1 giờ 4 phút

Câu hỏi 1

Hoàn thành

Đạt điểm 1,00

Consider the following assembly instruction sequence

```
        CMP DL, 0
        JB    x_label
        CMP DL, 9
        JA    a_label
        ADD DL, 30h
        JMP  x_label
a_label:
        CMP DL, 0Fh
        JA    x_label
        ADD DL, 31h
x_label:
        MOV AL, DL
watch point:
...
```

Choose correct value of AL register at watch point for different value of DL?

DL=55h [85h] => AL=55h

DL=0FFh [41h] => AL=FFh

DL=10 [38h] => AL=3Bh

DL=8 [0FFh] => AL=38h

Câu hỏi 2

Hoàn thành

Đạt điểm 1,00

Select correct match for AX (Decimal) at watch points:

```
                MOV AX, 1BC
                MOV CL, 2
                SHL  AX, CL
watch point #1:
                ADD  AX, 166
watch point #2:
                SHR   AX, CL
watch point #3:
                SHR   AX, CL
               ......
```

1BC=444
166=1010 0110b

watch point #1: [1064] => 444*(2^2)=1776=0110 1111 0000b

watch point #2: [266] => 1776 & 166 = 160

watch point #3: [266] => 160/(2^2) = 40

Câu hỏi 3
Hoàn thành
Đạt điểm 0,50

if the location to which the control is to be transferred lies in a segment other than the current one, then the jump instruction is called

Select one:
- ○ intrasegment mode
- ◉ intersegment mode
- ○ intrasegment indirect mode
- ○ intrasegment direct mode

Câu hỏi 4
Hoàn thành
Đạt điểm 1,00

Structural components of computer include:

Select one or more:
- ☑ System interconnection
- ☐ Interrupt
- ☑ Central processing unit
- ☑ I/O
- ☑ Memory
- ☐ DMA

Câu hỏi 5
Hoàn thành
Đạt điểm 0,50

Which could be correct ones for the destination operand in a data movement instruction?

Select one or more:
- ☐ immediate data
- ☐ all choices are correct
- ☑ register
- ☑ memory location

Câu hỏi 6
Hoàn thành
Đạt điểm 0,50

the instruction, JMP C008:2000h is an example of

Select one or more:
- ☐ intrasegment mode
- ☑ near jump
- ☐ intersegment jump
- ☑ far jump

Câu hỏi 7
Hoàn thành
Đạt điểm 1,00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 00 40 08 42 - 99 80 3E 20 99 00 75 24

SI = 120

The following instruction is executed:

MOV EAX, [SI+4]

Assume the value in EAX is a 32-bit floating-point binary, what is the value of EAX in decimal?

Answer: 4000

Câu hỏi 8

Hoàn thành

Đạt điểm 1,00

Given a code snippet:

```
int n = 10;
do {
    n--;
} while (n > 0);
```

Which ones are the equivalent logic sequence of instructions in Assembly

Select one or more:

- [x]
```
mov cx, 10
a_label:
  .....
  loop  a_label
```
- [ ]
```
mov cx, 10
a_label:
  .....
  dec cx
  cmp cx,0
  jz  a_label
```
- [ ]
```
mov cx, 10
a_label:
  .....
  dec cx
  loop  a_label
```
- [x]
```
 mov cx, 10
a_label:
   dec cx
  cmp cx, 0
  jz e_label
  jmp a_label
e_label:
```

Câu hỏi 9

Hoàn thành

Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of AX, CX, DX at watch point?

```
MOV AX,30
MOV CX,FFFF
MUL  CX
```

watch point:

CX = FFFF

AX = FFD0

DX 002F

Câu hỏi 10

Không trả lời

Đạt điểm 0,50

Write mask byte (in hex) to set higher 4 bits in a byte value with OR instruction (LSB is the 1st bit).

Answer: F0

Câu hỏi 11
Hoàn thành
Đạt điểm 0,50

After executing PUSH EAX instruction, the stack pointer

Select one:

- ○ increment by 1
- ◉ decrements by 4
- ○ decrement by 1
- ○ increment by 2

Câu hỏi 12
Không trả lời
Đạt điểm 1,00

Given an assembly code copying the memory buffer Buff1 to Buff2:

```
        PUSH DS
        POP   ES
        LEA   SI, Buff1
        LEA   DI, Buff2
        MOV  CX,20
        ;--- Start of block
cp_loop:
        MOV  AL, Byte Ptr [SI]
        MOV  Byte Ptr ES:[DI], AL
        INC   SI
        INC   DI
        LOOP cp_loop
        ; ---End of block
```

Choose equivalent string operations in place of block

Select one or more:

- ☐
```
CLD
cp_loop:
    MOVSB
    LOOP cp_loop
```
- ☐
```
STD
cp_loop:
    MOVSB
    LOOP cp_loop
```
- ☐
```
CLD
cp_loop:
    REP MOVSB
    LOOP cp_loop
```
- ☐
```
CLD
REP MOVSB
```

Câu hỏi 13
Hoàn thành
Đạt điểm 0,50

the instruction that is used as prefix to an instruction to execute it repeatedly until the CX register becomes zero is

Select one:

- ○ CMPS
- ○ SCAS
- ○ CMPS
- ◉ REP

Câu hỏi 14
Hoàn thành
Đạt điểm 0,50

Write mask byte (in hex) to clear all the lower 7 bits of a byte value with AND instruction.

Answer: AND AL, 01111111B

80h

89.2345=1000 1001.0010 0011 0100 0101=1.0001 0010 0100 0110 1000 101 * 2^7

Câu hỏi 15
Không trả lời
Đạt điểm 1,00

Convert -89.2345 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa) in hex

Answer: 1|1000 0100|000 1001 0010 0011 0100 0101

S=1
E=exponent + bias
=7+(2^7-1)=134=1000 0100b
M=0001 0010 0100 0110 1000 101b

Câu hỏi 16
Không trả lời
Đạt điểm 1,50

Given a row of memory image in debug

072C:FFF0 00 00 00 01 00 00 2C 07 - 07 01 2C 07 17 72 00 00

SS=072C, SP=FFF8, DS = 072C

Assume the stack now stores two (2) 16-bit parameters and one (1) 16-bit return address in following order: stack top (return address) >> parameter #1 >> parameter #2.

The following sequence of instructions are executed. What is the correct values at watch points?

```
MOV BP, SP
```

watch point #1 (BP):

```
MOV AX, [BP+2]
```

watch point #2 (AX):

```
ADD AX, [BP+4]
```

watch point #3 (AX):

```
MOV DI, 120
MOV [DI], AX
```

watch point #1: Chọn...

watch point #2: Chọn...

watch point #3: Chọn...

Câu hỏi 17
Hoàn thành
Đạt điểm 0,50

The instruction that subtracts 1 from the contents of the specified register/memory location is

Select one:

- (•) DEC
- ( ) SUB
- ( ) SBB
- ( ) INC

Câu hỏi 18
Không trả lời
Đạt điểm 1,00

Memory dump at 1D20:0200 shown as below:

1D20:0200 00 20 10 5D 55 47 00 90 - 00 10 20 30 40 50 60 70

Given value of registers:

DS = 1D20, ES = 1D20, DI = 20A

The following sequence of instructions are executed:

```
MOV SI,208h
MOV AX,0040h
MOV CX,000Ah
CLD
REPNZ SCASB
```

watch point:

```
. . . . .
```

What is the correct value of AX, SI, DI registers at watch point?

DI = Chọn...

AX = Chọn...

SI = Chọn...

Câu hỏi 19
Hoàn thành
Đạt điểm 1,00

What is the meaning of Amdahl's law in processor performance evaluation?

Select one:

- ○ the cost reduce when moving from single-core to multicore processor
- ◉ the maximum speedup of a multicore processor
- ○ the potential speedup of a program using multiple processor compared to a single processor
- ○ the speedup of a multicore processor when increasing system bus speed

Câu hỏi 20
Hoàn thành
Đạt điểm 0,50

Which are the correct actions for LODSW string operation if DF is reset (=0)

Select one or more:

- ☐ decrease DI by 2
- ☐ Load 16-bit value at memory location pointed by ES:[DI] into AX
- ☑ increase SI by 2
- ☑ Load 16-bit value at memory location pointed by DS:[SI] into AX

Câu hỏi 21
Không trả lời
Đạt điểm 1,00

When many devices of different transmission speed connect to the same bus, the overall system performance suffers. How did the design engineers resolved this:

Select one:

- ○ PCI Express bus
- ○ Multiple-Bus hierarchies
- ○ PCI bus
- ○ Split system bus into local bus and memory bus

Câu hỏi 22
Hoàn thành
Đạt điểm 0,50

the instruction, CMP to compare source and destination operands by _____

Select one:
- adding
- comparing
- dividing
- subtracting

Câu hỏi 23
Hoàn thành
Đạt điểm 1,00

To balance the super speed of CPU with the slow response of memory, which of the following measures have been made by engineers in system design?

Select one or more:
- [ ] Make use of both on-chip and off-chip cache memory
- [x] Make wider data bus path
- [x] Using higher-speed bus and us hierarchy
- [x] To move data directly by DMA

Câu hỏi 24
Hoàn thành
Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of AX, DX at watch point?

```
MOV DL,FF
MOV AL,42
IMUL  DL
```

watch point:

AX = FFBE

DX = 0000

Câu hỏi 25
Hoàn thành
Đạt điểm 0,50

In the RCR instruction, the contents of the destination operand undergoes function as

Select one:
- carry flag is pushed into LSB then MSB is pushed into carry flag
- overflow flag is pushed into MSB then LSB is pushed into carry flag
- carry flag is pushed into MSB then LSB is pushed into carry flag
- auxiliary flag is pushed into LSB then MSB is pushed into carry flag

Câu hỏi 26
Hoàn thành
Đạt điểm 0,50

Which could be correct ones for the source operand in an instruction?

Select one or more:
- [x] immediate data
- [x] memory location
- [ ] indirect data
- [x] register

Câu hỏi 27
Hoàn thành
Đạt điểm 1,00

Convert the 32-bit floating point number A3358000 (in hex) to decimal.

Note:

Result with exponent should be written like (e.g): 1.2345678x10^-13 or 1.2345678x10^13 (no space between digits/characters)

Answer: -9.83913471531×10^-18

Câu hỏi 28
Hoàn thành
Đạt điểm 1,00

Select correct match for register values at watch points:

```
                MOV AX, 152D
                ADD AX, 003F
watch point #1:
                ADD AH, 10
watch point #2:
                ......
```

watch point #2: AH = 25

watch point #1: AL = 6C

Câu hỏi 29
Hoàn thành
Đạt điểm 0,50

Which are the correct actions for SCASW string operation if DF is set (=1)

Select one or more:

- [x] decrease DI by 2
- [x] compare the value in AX register with 16-bit value at the memory location pointed by ES:[DI] and set/clear flag bits accordingly
- [ ] increase DI by 2
- [ ] compare the value in AX register with 16-bit value at the memory location pointed by DS:[SI] and set/clear flag bits accordingly

Câu hỏi 30
Hoàn thành
Đạt điểm 1,00

What is the correct value of SI, AL (in hex) at watch point:

```
01:             MOV SI, 300h
02:             MOV AL, 10h
03:             MOV CX, 7
04: Loop_label:
05:             MOV [SI], AL
06:             ADD AL,10h
07:             INC  SI
08:             LOOP Loop_label
```

watch point:

SI 80h

AL = 80h

Câu hỏi 31
Hoàn thành
Đạt điểm 1,00

Select the correct sequence of instructions to compute -1024/128 (all values are in hex).

Step 1: CWD

Step 2: MOV CX,80

Step 3: MOV CL,80

Step 4: IDIV CL

Câu hỏi 32

Hoàn thành

Đạt điểm 1,00

Select correct match for AL and carry flag at watch point #1:

```
MOV BL, 8C
MOV AL, 7E
ADD AL, BL
```

watch point #1:

```
.....
```

AL [0A]

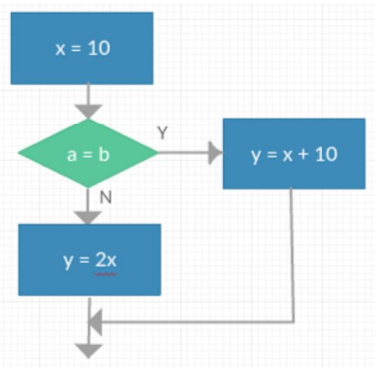
Carry flag [set]

Câu hỏi 33

Hoàn thành

Đạt điểm 1,00

Given a flowchart of an algorithm:



Select the correct instruction sequence:

Select one or more:

☐
```
    mov dl,10
    cmp al,bl
    jnz n_label
    add dl,10
    jmp e_label
n_label:
    mov cl,1
    shl dl,cl
e_label:
    mov dh,dl
```

☑
```
    mov dl,10
    cmp al,bl
    jnz n_label
    add dl,10
    mov dh,dl
    jmp e_label
n_label:
    mov cl,1
    shl dl,cl
e_label:
    mov dh,dl
```

☐
```
    mov dl,10
    cmp al,bl
    jnz n_label
    add dl,10
    jmp e_label
n_label:
    mov cl,1
    shr dl,cl
e_label:
    mov dh,dl
```

☐
```
    mov dl,10
    cmp al,bl
    jz  n_label
    mov cl,1
    shl dl,cl
    jmp e_label
n_label:
    add dl,10
e_label:
    mov dh,dl
```

Câu hỏi 34
Hoàn thành
Đạt điểm 0,50

After executing the POP EAX instruction, the stack pointer

Select one:
- ○ decrements by 4
- ○ decrements by 2
- ◉ increments by 4
- ○ increment by 1

Câu hỏi 35
Hoàn thành
Đạt điểm 0,50

Sign-extend number BF (8-bit binary) to 16-bit. Write result in hex

Answer: 191

Câu hỏi 36
Hoàn thành
Đạt điểm 0,50

Which of the following instructions are not valid?

Select one or more:
- ☑ MOV DS, B800h
- ☐ MOV AX, [BP+2]
- ☑ MOV SP, SS:[SI+2]
- ☐ MOV AX, SI

Câu hỏi 37
Hoàn thành
Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of flag bits at watch point?

```
MOV AL, 0F
ADD AL, F1
```

watch point:

Zero flag (OF) = reset

Carry flag (CF) = set

Câu hỏi 38
Hoàn thành
Đạt điểm 1,00

Major structural components of the CPU include:

Select one or more:
- ☑ Registers
- ☑ Arithmetic and Logic Unit
- ☐ Instruction Pointer (PC)
- ☑ Interconnections
- ☑ Control Unit
- ☐ Instruction Register

Câu hỏi 39
Hoàn thành
Đạt điểm 1,00

Consider a magnetic disk drive with 8 surfaces, 512 tracks per surface, and 64 sectors per track. Sector size is 1 kB. What is the disk capacity

Answer: 512 KB

Câu hỏi 40

Hoàn thành

Đạt điểm 1,00

What best describe the Spatial and Temporal Locality?

Temporal locality	be exploited by keeping recently used instruction and data in cache memory and by exploiting a cache hierarchy
Spatial locality	be exploited by moving data between cache and memory more efficient

Câu hỏi 41

Hoàn thành

Đạt điểm 1,00

Given a code snippet:

```
int ax, bx;
...
if (ax >= bx)
   ax -=bx;
else
   bx -=ax;
```

What is the equivalent logic sequence of instructions in Assembly

Select one:

- cmp ax,bx
  jl a_label
  sub ax,bx
  jmp x_label
  a_label:
  sub bx,ax
  x_label:
- cmp ax,bx
  jbe a_label
  sub ax,bx
  jmp x_label
  a_label:
  sub bx,ax
  x_label:
- cmp ax,bx
  ja a_label
  sub ax,bx
  jmp x_label
  a_label:
  sub bx,ax
  x_label:
- cmp ax,bx
  jge a_label
  sub ax,bx
  jmp x_label
  a_label:
  sub bx,ax
  x_label:

Câu hỏi 42

Hoàn thành

Đạt điểm 0,50

Which of the following is not a data copy/transfer instruction?

Select one or more:

- [x] ADC
- [ ] MOV
- [ ] LEA
- [x] DAS

Return to: General