# Kiểm-Tra-KTMT- -HN-HK1-2019-2020

Computer Architecture and Assembly language (Trường Đại học Sư phạm Kỹ thuật Thành phố Hồ Chí Minh)

# Kien truc may tinh va hop ngu_ Nhom 04

| | |
|---|---|
| **Bắt đầu vào lúc** | Monday, 11 November 2019, 9:07 AM |
| **State** | Finished |
| **Kết thúc lúc** | Monday, 11 November 2019, 9:47 AM |
| **Thời gian thực hiện** | 40 phút |

**Câu hỏi 1**
Hoàn thành
Đạt điểm 0,50

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

Select one:

- comparing
- adding
- subtracting
- dividing

**Câu hỏi 2**
Hoàn thành
Đạt điểm 1,00

Match the decimal value of the following 2's complement.

| | |
|---|---|
| 11010000 | -48 ▼ |
| 10010111 | -105 ▼ |
| 11010110 | -42 ▼ |

**Câu hỏi 3**

Hoàn thành

Đạt điểm 1,00

Consider the following assembly instruction sequence

```
        XOR BX, BX
        CMP DL, 5
        JLE   a_label
        CMP DL,17h
        JGE  a_label
        MOV BX, 10h
a_label:
        INC BX
```

watch point:

...

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

DL=10 [11h ▼]

DL=0FFh [01h ▼]

DL=17h [01h ▼]

DL=0Ah [11h ▼]

**Câu hỏi 4**

Hoàn thành

Đạt điểm 1,00

For better speed, in CPU design, engineers make use of the following techniques:

Select one or more:

- [ ] Faster CPU internal bus
- [x] Pipelining
- [ ] Speculative execution
- [x] Branch prediction

**Câu hỏi 5**

Hoàn thành

Đạt điểm 1,00

Consider a 32-bit microprocessor whose bus cycle is the same duration as that of a 16-bit microprocessor. Assume that, on average, 30% of the operands and instructions are 32 bits long, 40% are 16 bits long, and 30% are only 8 bits long. Calculate the improvement achieved when fetching instructions and operands with the 32-bit microprocessor?

Select one:

- ( ) 10%
- (•) 23%
- ( ) 15%
- ( ) 17%

**Câu hỏi 6**

Hoàn thành

Đạt điểm 1,00

Choose correct set of registers for x86 processor

Data pointer in data segment DS: SI

Pointer to variable in stack SS: BP

Data pointer to source memory in extra segment ES: IP

Instruction pointer CS: BP

**Câu hỏi 7**

Hoàn thành

Đạt điểm 1,00

Select correct definition of seek time, rotational delay, access time, transfer time for hard drives with moveable-head system:

rotational delay: time for the sector in the request track to reach the head

access time: seek time + rotational delay

seek time: time for the head to settle at the request track

**Câu hỏi 8**

Hoàn thành

Đạt điểm 1,00

Given 8-bit floating-point binary format:

1 (sign) + 3 (exponent) + 4 (mantissa)

Convert the 8-bit floating point number 68 (in hex) to decimal.

Answer: 12

**Câu hỏi 9**

Không trả lời

Đạt điểm 2,00

Write a sequence of instructions to encode the 10th line in display memory (starting from B800) by XORing each byte with a key value (pre-select yourself). The result must be stored at memory location starting from 300h in data segment.

**Câu hỏi 10**

Hoàn thành

Đạt điểm 0,50

After each execution of PUSH instruction, the stack pointer is

Select one:

- increment by 2
- decrement by 2
- decrement by 1
- increment by 1

**Câu hỏi 11**

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
jge  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
jl  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:
```

**Câu hỏi 12**

Hoàn thành

Đạt điểm 1,00

Select correct level for contemporary computer multilevel machine

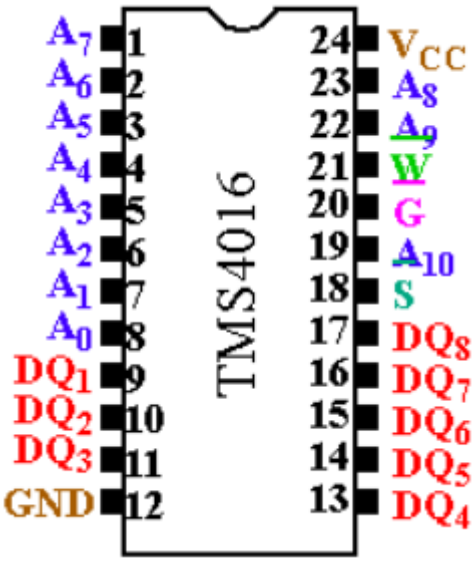
| | |
|---|---|
| Level 6 | Applications |
| Level 2 | Instruction set level |
| Level 1 | Microarchitecture level |
| Layer 4 | Assembly Language level |
| Level 5 | High level programming language |
| Level 3 | Instruction set level |
| Level 0 | Digital logic level |

**Câu hỏi 13**

Hoàn thành

Đạt điểm 1,00

Choose the correct structure of memory chip as shown below




Note:

DQ: Data pinout

Select one:

- DRAM 2Kx8-bit
- SRAM 2Kx8-bit
- SRAM 1Kx16-bit
- DRAM 1Kx16-bit

**Câu hỏi 14**

Hoàn thành

Đạt điểm 1,00

Select correct items to describe best about CISC

| | |
|---|---|
| code size of program | small code size ▼ |
| Instruction set | different for variety of instructions ▼ |
| Bytes per instruction | multi-clock ▼ |
| Assembly code | simpler ▼ |
| Number of clocks per instruction | Complex ▼ |

**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:

**Câu hỏi 16**

Không trả lời

Đạt điểm 2,00

Given code snippet in C:

```
if (a>=0 && a <=9)
   x = a + 48;
else if (a >=10 and a <=15)
   x = a + 55;
```

Write a sequence of instructions in assembly to do the same.

**Câu hỏi 17**

Hoàn thành

Đạt điểm 1,00

In the interconnection system among computer components (e.g.. CPU, Memory, I/O) the number of address line governs:

Select one:

- Size of cache memory
- Size of I/O port
- The maximum physical memory size that the CPU can address
- Size of memory word

**Câu hỏi 18**
Hoàn thành
Đạt điểm 0,50

In multiplication instruction, the result is taken from AX means the source operand is _____ bit

Select one:

- 8
- None of the choices are correct
- 4
- 16

**Câu hỏi 19**
Hoàn thành
Đạt điểm 0,50

To encrypt a byte value, use _____ instruction.

Select one:

- NOT
- OR
- AND
- XOR

**Câu hỏi 20**
Không trả lời
Đạt điểm 2,00

Write a sequence of instructions to sum up 10 values of byte in memory starting from 200h. The result must be stored at memory location 300h.

**Câu hỏi 21**
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
                ......
```

watch point #2: 898 ▼

watch point #1: 1064 ▼

watch point #3: 266 ▼

**Câu hỏi 22**
Hoàn thành
Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of EAX, EBX, EDX at watch point?

```
        MOV EAX,00002000
        MOV EBX,00100000
        MUL  EBX
```

watch point:

EAX = 00000000 ▼

EBX = 00100000 ▼

EDX = 00000002 ▼

**Câu hỏi 23**
Hoàn thành
Đạt điểm 1,00

Choose correct features for SRAM and DRAM

SRAM Faster access time, cost more per bit, smaller size ▼

DRAM Slower access time, cheaper cost per bit, can manufacture with larger size ▼

**Câu hỏi 24**
Không trả lời
Đạt điểm 1,00

On average, how much is capacity of a CD (Compact Disk)? Where does this figure come from? (Students can reply in Vietnamese)

**Câu hỏi 25**

Hoàn thành

Đạt điểm 1,00

Convert the 32-bit floating point number 76650000 (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: 1.16116795x10^33

**Câu hỏi 26**

Hoàn thành

Đạt điểm 1,00

The principle of cache memory relies on key features: locality of reference which involves spatial and temporal locality. Match the definition to keywords on the left

Spatial locality: the tendency of execution to involve a number of memory locations that are clustered

tendency to use large cache and prefetch mechanism

Temporal locality: the tendency for a processor to access memory locations that have been used recently

**Câu hỏi 27**

Không trả lời

Đạt điểm 1,00

Thiết kế module nhớ SRAM 16Kx8(*) bit từ các chip SRAM 16Kx4-bit, sau đó ghép các module nhớ (*) thành bộ nhớ 64Kx16-bit (**). Cho biết số lượng chip 16Kx4 cần thiết để tạo ra bộ nhớ (**).

Cho biết mỗi chip nhớ có các chân ra địa chỉ Ai, chân ra dữ liệu Di, chân Read/Write, chân CS (chip select).

Vẽ sơ đồ logic cho từng trường hợp.

**Câu hỏi 28**

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) = set

Carry flag (CF) = set

**Câu hỏi 29**

Hoàn thành

Đạt điểm 1,00

Memory dump at 1D20:0200 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, SI = 200, BX = 202, AX = 0103

Identify correct value of AX register after XLAT instruction is executed.

AH = 55h ▼

AL = 5Dh ▼

**Câu hỏi 30**

Hoàn thành

Đạt điểm 1,00

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

```
MOV AX, 67FE
MOV BX, AX
MOV CL, BH
MOV CH, BL
```

watch point:

BX = 67FE ▼

CX = FE67 ▼

**Câu hỏi 31**

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,-5
SUB  AL,123
```

watch point:

Sign flag (SF) set ▼

Zero flag (OF) = reset ▼

Carry flag (CF) = reset ▼

**Câu hỏi 32**

Hoàn thành

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:

- [x] STD
  ```
  cp_loop:
      MOVSB
      LOOP cp_loop
  ```
- [ ] CLD
  ```
  cp_loop:
      REP MOVSB
      LOOP cp_loop
  ```
- [ ] CLD
  ```
      REP MOVSB
  ```
- [ ] CLD
  ```
  cp_loop:
      MOVSB
      LOOP cp_loop
  ```

**Câu hỏi 33**

Hoàn thành

Đạt điểm 1,00

Convert the following numbers from the base shown to base 10

| | |
|---|---|
| 111 (base 2) | 7 ▼ |
| 777 (base 16) | 1911 ▼ |
| 111 (base 8) | 73 ▼ |
| FEC (base 16) | 4076 ▼ |
| 777 (base 8) | 511 ▼ |

**Câu hỏi 34**

Hoàn thành

Đạt điểm 1,20

A system programmer needs to divide -100 by 5. Instruct him to code in debug (number must be in hex) and the result should be?

Step 1: MOV AL, FF64

Step 2: CBW

Step 3: MOV CL,5

Step 4: DIV CL

Result:

AX = FFEC

**Câu hỏi 35**

Hoàn thành

Đạt điểm 1,00

Match the following hexadecimal numbers to octal

6E 156

A9 251

E7 347

**Câu hỏi 36**

Hoàn thành

Đạt điểm 3,00

Consider two different machines, with two different instruction sets, both of which have a clock rate of 200 MHz. The following measurements are recorded on the two machines running a given set of benchmark programs

| Instruction Type | Instruction Count (millions) | Cycles Per Instruction |
|---|---|---|
| Machine A | | |
| Arithmetic and logic | 8 | 1 |
| Load and store | 4 | 3 |
| Branch | 2 | 4 |
| Others | 4 | 3 |
| Machine A | | |
| Arithmetic and logic | 10 | 1 |
| Load and store | 8 | 2 |
| Branch | 2 | 4 |
| Others | 4 | 3 |

Determine the effective, CPI, MIPS rate and execution time for each machine.

MIPs_a 1.92 ▼

MIPs_b 2.22 ▼

CPU Time_b 0.23 ▼

CPU Time_a 0.2 ▼

CPI_b 90 ▼

CPI_a 104 ▼

◄ Essentials of Computer Organization and Architecture (Linda Null & Julia Lobur)

Danh sách sinh viên nhóm 04 ►

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