# Nhóm 06-07-08CLC - Kiến trúc máy tính và hợp ngữ

| | |
|---|---|
| **Bắt đầu vào lúc** | Saturday, 8 April 2017, 1:12 PM |
| **State** | Finished |
| **Kết thúc lúc** | Saturday, 8 April 2017, 1:22 PM |
| **Thời gian thực hiện** | 10 phút 13 giây |
| **Điểm** | 22,25/22,25 |
| **Điểm** | **10,00** out of 10,00 (**100**%) |

**Câu hỏi 1**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Given 8-bit floating-point binary format:

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

Convert the 8-bit floating point number 57 (in hex) to decimal.

Answer: 5,75 ✓

**Câu hỏi 2**

Đúng

Đạt điểm 1,50 trên 1,50

Đặt cờ

A system programmer needs to divide -6247 by 300 (decimal). Instruct him to code in debug (number must be in hex) and the result should be?

Step 1: MOV AX,E799 ✓

Step 2: CDW ✓

Step 3: MOV BX,012C ✓

Step 4: IDIV BX ✓

Result:

AX = FFEC ✓

DX = FF09 ✓

Your answer is correct.

**Câu hỏi 3**

Đúng

Write mask byte (in hex) to clear the lower 4 bit of a byte value with AND instruction.

Đạt điểm 0,50 trên 0,50

Đặt cờ

Answer: F0 ✓

**Câu hỏi 4**

Đúng

Đạt điểm 0,50 trên 0,50

Đặt cờ

To isolate one or more bits in a byte value, use _____ instruction.

Select one:

- OR
- NOT
- AND ✓
- XOR

Your answer is correct.

**Câu hỏi 5**

Đúng

Đạt điểm 0,25 trên 0,25

Đặt cờ

EAX now stored a 32-bit IP address of a host. The network ID (netID) is 20 bit and can be extracted from IP byte anding with a 32-bit mask. Write correct instruction to extract netID from EAX register.

**Note:** Immediate value must be written in hex

Answer: and EAX,FFFFF000 ✓

**Câu hỏi 6**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

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:

CX = FE67 ✓

BX = 67FE ✓

Your answer is correct.

**Câu hỏi 7**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

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

```
MOV EAX, 12AE
SUB  EAX, 12AF
```

watch point:

sign flag set ✓

Zero flag (OF) = reset

Carry flag (CF) = set

Your answer is correct.

**Câu hỏi 8**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Physical address of the stack pointer is 2DA82, stack segment located at 1DAE. Computer the value of SP register?

Answer: FFA2

**Câu hỏi 9**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Match the following hexadecimal numbers to octal

E7 347

6E 156

A9 251

Your answer is correct.

**Câu hỏi 10**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Enter debug command to fill 256 bytes in data segment starting from 100 with value 0D

Answer: f 100 1FF 0D

**Câu hỏi 11**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Given 8-bit floating-point binary format:

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

Convert the 8-bit floating point number E7 (in hex) to decimal.

Answer: -11,5

**Câu hỏi 12**

Đúng

Đạt điểm 1,50 trên 1,50

Đặt cờ

Match the correct answer for binary operations on the left

1111111 - 111 1111000

1100111 - 111 1100000

1010101 + 10101 1101010 ✓

1010110 - 101 1010001 ✓

1110011 + 11001 10001100 ✓

1111111 + 11111 10011110 ✓

Your answer is correct.

**Câu hỏi 13**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Convert the following binary numbers to hexadecimal

10101001 A9 ✓

01101110 6E ✓

11100101 E5 ✓

11100111 E7 ✓

Your answer is correct.

**Câu hỏi 14**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

The following sequence of instructions are executed. What is the correct value of CF and OF at watch point?

```
MOV AX,140h
MOV CX,8h
MUL  CX
```

watch point:

CF= reset ✓

OF= reset ✓

Your answer is correct.

**Câu hỏi 15**

Đúng

Đạt điểm 0,50 trên 0,50

Đặt cờ

To test one bit in a byte value without destructing the byte, use _____ instruction.

Select one:

- NOT
- AND

- TEST ✓
- OR

Your answer is correct.

**Câu hỏi 16**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

Initially, AX=BX=CX=DX=0, SI=121

What are value of CX,DX after execution of the following instructions?

```
MOV DX, [SI]
MOV CX, [SI+2]
```

DX = D096 ✓

CX = D0E0 ✓

Your answer is correct.

**Câu hỏi 17**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

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 ✓

Your answer is correct.

**Câu hỏi 18**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

A memory location located in extra segment which now has value of 564F. This memory managed by ES:SI register-pair. SI now points to 905F. Compute the physical address of this memory location

Answer: 5F54F ✓

**Câu hỏi 19**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

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

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

watch point #1:

```
.....
```

Carry flag set ✓

AL 0A ✓

Your answer is correct.

**Câu hỏi 20**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Convert the 32-bit floating point number C4361000 (in hex) to decimal.

Answer: -728,25 ✓

**Câu hỏi 21**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Which of the following instructions are not legal addressing?

Select one or more:

- [ ] MOV AX, [DI]
- [x] MOV AX, [BX+SP] ✓
- [x] MOV AX, [SP+1] ✓
- [ ] MOV CX, [SI]

Your answer is correct.

**Câu hỏi 22**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

Compute the physical address of stack top if stack pointer is FFAE and stack segment located at 1DAE

Answer: 2DA8E ✓

**Câu hỏi 23**

Đúng

Đạt điểm 0,50 trên 0,50

Đặt cờ

Sign-extend number 1011 0101 (8-bit binary) to 16-bit

Answer: 1111111110110101 ✓

**Câu hỏi 24**

Đúng

Đạt điểm 1,00 trên 1,00

Đặt cờ

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 ✓

Your answer is correct.

Finish review

# Thi Online KTMT&HN nhóm Chẵn

| | |
|---|---|
| **Started on** | Friday, 31 May 2019, 1:14 PM |
| **State** | Finished |
| **Completed on** | Friday, 31 May 2019, 2:23 PM |
| **Time taken** | 1 hour 8 mins |

**Question 1**
Complete
Marked out of 0.50

Write mask byte (in hex) to set bit 6th, 4th of a byte value with OR instruction (LSB is the 1st bit).

Answer: 3

**Question 2**
Complete
Marked out of 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 01h

DL=17h 28h

DL=0FFh 11h

DL=0Ah 6

**Question 3**
Complete
Marked out of 1.00

Choose correct features for SRAM and DRAM

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

SRAM Faster access time, cheaper cost per bit, can manufacture with larger size

**Question 4**

Complete

Marked out of 1.00

Consider a 16-bit microprocessor, with a 16-bit external data bus, driven by an 10-MHz input clock. Assume that this microprocessor has a bus cycle whose minimum duration equals four input clock cycles. What is the maximum data transfer rate across the bus that this microprocessor can sustain?

Select one:

- 1 MB/s
- 10 MB/s
- 5 MB/s
- 4 MB/s

**Question 5**

Complete

Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 1D4F

**Question 6**

Not answered

Marked out of 1.50

A benchmark program is run on a 40 MHz processor. The executed program consists of 100,000 instruction executions, with the following instruction mix and clock cycle count:

| Instruction Type | Instruction Count | Cycles per Instruction |
|---|---|---|
| Integer arithmetic | 45,000 | 1 |
| Data transfer | 32,000 | 2 |
| Floating point | 15,000 | 2 |
| Control transfer | 8000 | 2 |

Calculate MIPS rate for this program

Given:

$$\text{MIPS rate} = \frac{I_c}{T \times 10^6} = \frac{f}{CPI \times 10^6}$$

$$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

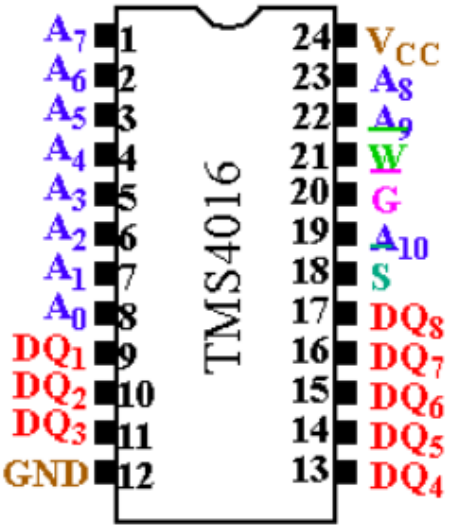
Answer:

**Question 7**

Complete

Marked out of 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

**Question 8**

Complete

Marked out of 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:

AL = 307h

SI 308h

**Question 9**

Complete

Marked out of 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

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

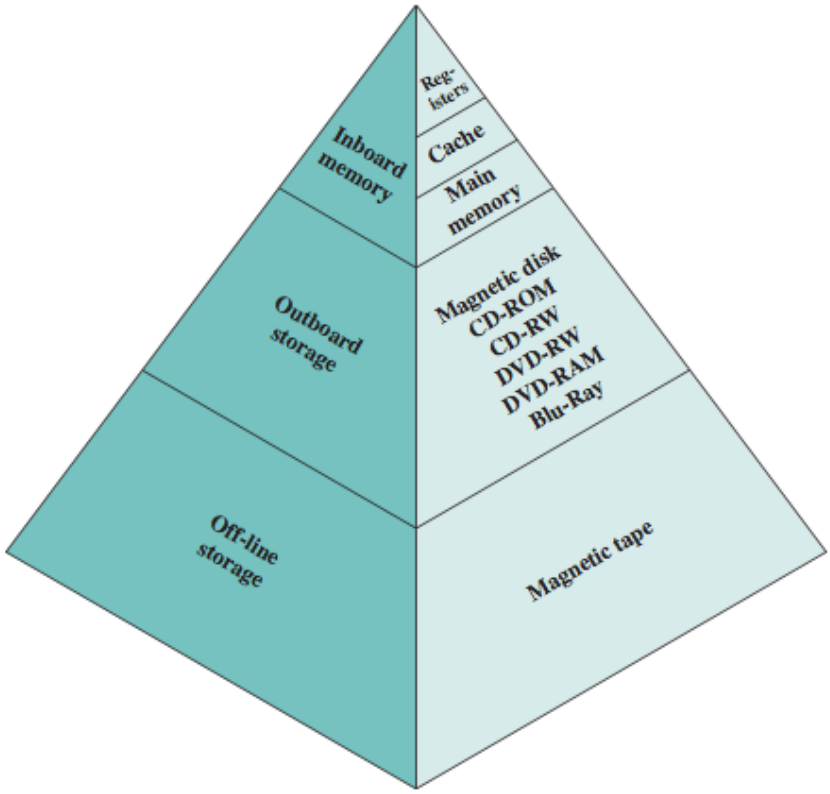
tendency to use large cache and prefetch mechanism

**Question 10**

Complete

Marked out of 1.00

For memory hierarchy below, which relationship hold when moving downward




Select one or more:

- [ ] Decreasing cost per bit
- [ ] Decreasing frequency of access by the processor
- [ ] Increasing access time
- [ ] Increasing capacity
- [x] the processor accesses more often

**Question 11**

Complete

Marked out of 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: 104

**Question 12**

Complete

Marked out of 1.00

In computer organization, the CPU transfer rate is much higher than that of memory. It is easy to match performance of these components by:

Select one:

- (•) increase the bus speed
- ( ) increase I/O speed
- ( ) producing faster memory module
- ( ) Introducing cache memory

**Question 13**

Complete

Marked out of 0.50

The instruction that loads the AH register with the lower byte of the flag register is

Select one:

- SAHF
- AH
- LAHF
- PUSHF

**Question 14**

Complete

Marked out of 1.50

Which are correct about 32 bit index registers of IA-32 processors:

Select one or more:

- ESH,EDH: 16 bit pointers to higher memory above 1M
- SI: 16 bit pointer to source memory in data movement instructions
- ESI: 32 bit pointer to source memory in data movement instructions
- EDI: 32 bit pointer to destination memory in data movement instructions
- DI: 16 bit pointer to destination memory in data movement instructions

**Question 15**

Complete

Marked out of 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

**Question 16**

Complete

Marked out of 1.20

What is the correct sequence of instruction cycle?

Step 6 Store result

Step 1 Fetch opcode

Step 2 Calculate operand address

Step 3 Fetch operand

Step 5 Decode

Step 4 Execution

**Question 17**
Complete
Marked out of 0.50

To encrypt a byte value, use _____ instruction.

Select one:
- AND
- NOT
- OR
- XOR

**Question 18**
Complete
Marked out of 0.50

Which of the following instructions are not valid?

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

**Question 19**
Complete
Marked out of 0.50

8088 is 16 bit processor, the maximum addressable memory is:

Select one:
- 640K
- 64M
- 640M
- 1024K

**Question 20**
Complete
Marked out of 1.00

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

rotational delay: access time + settle time
seek time: time for the head to settle at the request track
access time: transfer time

**Question 21**
Complete
Marked out of 1.00

Which of the following instructions are not legal addressing?

Select one or more:
- MOV AX, [SP+1]
- MOV AX, [DI]
- MOV CX, [SI]
- MOV AX, [BX+SP]

**Question 22**
Complete
Marked out of 1.00

A memory chip has 12 address pins, determine the maximum memory words of this chip?

Select one:

- 2048
- 4096
- 2048K
- 4000

**Question 23**
Complete
Marked out of 1.00

Convert 0.1015625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa)

Answer: 3DD00000

**Question 24**
Complete
Marked out of 1.00

Structural components of computer include:

Select one or more:

- [x] Memory
- [x] Central processing unit
- [x] I/O
- [ ] DMA
- [x] Interrupt
- [ ] System interconnection

**Question 25**
Complete
Marked out of 1.00

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

Step 1: MOV AX,FC00

Step 2: IDIV CX

Step 3: MOV CX,80

Step 4: CWD

**Question 26**
Complete
Marked out of 0.50

Sign-extend number 1011 0101 (8-bit binary) to 16-bit

Answer: B5

**Question 27**

Complete

Marked out of 1.00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 5A2D

**Question 28**

Complete

Marked out of 2.00

Choose correct RAID volume definitions for a request 2T storage.

Spanned Volume: 2T HDD + more HDDs to extend storage, no fault tolerance, data lost when one HDD fails

RAID5 Volume: At least 3 x 2T HDDs, fault-tolerance, no data lost, no down-time

RAID 1 - Mirror volume: 2 x 2T HDDs are needed, no data lost when the primary storage fails

RAID 0 - Striped volume: 2 x 1T HDDs are needed, enhance data transfer, no fault tolerance, data lost when one HDD fails

**Question 29**

Complete

Marked out of 1.00

Select correct level for contemporary computer multilevel machine

Level 1: Operating system level

Layer 4: Microarchitecture level

Level 3: Digital logic level

Level 2: Digital logic level

Level 5: Internet

Level 0: Assembly Language level

Level 6: High level programming language

**Question 30**

Complete

Marked out of 0.50

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

Select one:

- dividing
- comparing
- adding
- subtracting

**Question 31**

Complete

Marked out of 0.50

Write mask byte (in hex) to clear bit 2nd, 3rd, 5th of a byte value with AND instruction (LSB is 1st bit).

Answer: 5

**Question 32**

Complete

Marked out of 1.00

To evaluate processor performance, the following indicators and formulas are used:

Cycles per instruction $$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Time to execute a program $$T = I_c \times CPI \times \tau$$

Or $$T = I_c \times [p + (m \times k)] \times \tau$$

In which:
p: the number of processor cycles needed to decode and execute the instruction
m: the number of memory references needed
k: the ratio between memory cycle time and processor cycle time
τ: cycle time = *1/f*

Which of the following system attributes affects cycle time τ

Select one or more:

- [x] Compiler technology
- [ ] Cache and memory hierarchy
- [ ] Processor implementation
- [x] Instruction set architecture

**Question 33**

Not answered

Marked out of 1.00

Convert the 32-bit floating point number C4361000 (in hex) to decimal.

Answer:

**Question 34**

Complete

Marked out of 1.00

Which is correct about dual-layer DVD?

Select one:

- ( ) contains layers on both sides of the disk for writing data to
- ( ) the same as double-sided DVD
- ( ) contains two layers on a single side for writing data to
- (•) DVD drives has double laser head for reading from or writing to this disk

**Question 35**
Complete
Marked out of 1.00

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

```
MOV AX,0020
MOV CX,0010
MUL  CL
```

watch point:

AX = 0200 ▼

DX 0000 ▼

CX = 0010 ▼

**Question 36**
Complete
Marked out of 0.50

In multiplication instruction, the upper half of the result is nonzero implies which state of Carry flag and Overflow flag?

Select one or more:

- [x] CF=0
- [x] OF=1
- [ ] OF=0
- [ ] CF=1

**Question 37**
Complete
Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- [x] a. Head, Track, Sector are key parameters for access data on hard disk
- [ ] b. Head, Track, Cylinder are key parameters for access data on hard disk
- [x] c. Bits are stored on tracks
- [ ] d. Bits are store randomly on disk surfaces

**Question 38**
Complete
Marked out of 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: 16.3 KB ▼

**Question 39**
Complete
Marked out of 0.50

Which are the correct inputs for XLAT instruction

Select one or more:

- [ ] look-up index must be loaded into AL
- [x] look-up index must be loaded into DL
- [ ] DS:[BX] pointed to look-up table
- [x] DS:[SI] pointed to look-up table

**Question 40**

Not answered

Marked out of 1.00

A benchmark program is run on a 40 MHz processor. The executed program consists of 100,000 instruction executions, with the following instruction mix and clock cycle count:

| Instruction Type | Instruction Count | Cycles per Instruction |
|---|---|---|
| Integer arithmetic | 45,000 | 1 |
| Data transfer | 32,000 | 2 |
| Floating point | 15,000 | 2 |
| Control transfer | 8000 | 2 |

Calculate the execution time for this program.

Given:

$$T = I_c \times CPI \times \tau$$

$$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Answer:

**Question 41**

Complete

Marked out of 0.50

In multiplication instruction, when the source operand is 8 bit, _____ will be multiplied with source.

Select one:

- BX
- AL
- AX
- Whatever general purpose register

**Question 42**

Complete

Marked out of 0.50

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

Select one or more:

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

**Question 43**

Complete

Marked out of 1.50

A system programmer needs to compute 449/2+358/4 (decimal). Instruct him to code in debug (number must be in hex) with the least number of instruction counts.

Step 1: MOV BX,AX

Step 2: ADD AX,BX

Step 3: MOV CL,2

Step 4: ADD AX,166

Step 5: SHL AX,CL

Step 6: SHR AX,CL

**Question 44**

Complete

Marked out of 1.00

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

Select one or more:

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

**Question 45**

Complete

Marked out of 1.00

Which ones are not correct for static RAM?

Select one or more:

- [x] Cheaper than dynamic RAM because simpler chip controller
- [x] Cost per bit is lower than dynamic RAM
- [ ] faster than dynamic RAM because they are made from capacitor
- [ ] Cost per bit is higher than dynamic RAM

◄ Announcements

Return to: General

# Thi Online KTMT&HN nhóm lẻ

| | |
|---|---|
| **Started on** | Friday, 31 May 2019, 1:15 PM |
| **State** | Finished |
| **Completed on** | Friday, 31 May 2019, 2:25 PM |
| **Time taken** | 1 hour 10 mins |

**Question 1**

Complete

Marked out of 1.00

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

Select one or more:

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

**Question 2**

Complete

Marked out of 1.20

What is the correct sequence of instruction cycle?

Step 3 — Fetch operand

Step 6 — Store result

Step 4 — Calculate operand address

Step 1 — Fetch opcode

Step 5 — Execution

Step 2 — Decode

**Question 3**

Complete

Marked out of 1.00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 5A2D

**Question 4**

Complete

Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 1D4F

**Question 5**

Complete

Marked out of 0.50

The instruction that loads the AH register with the lower byte of the flag register is

Select one:

- LAHF
- PUSHF
- SAHF
- AH

**Question 6**

Complete

Marked out of 1.00

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

rotational delay: transfer time

access time: seek time + rotational delay

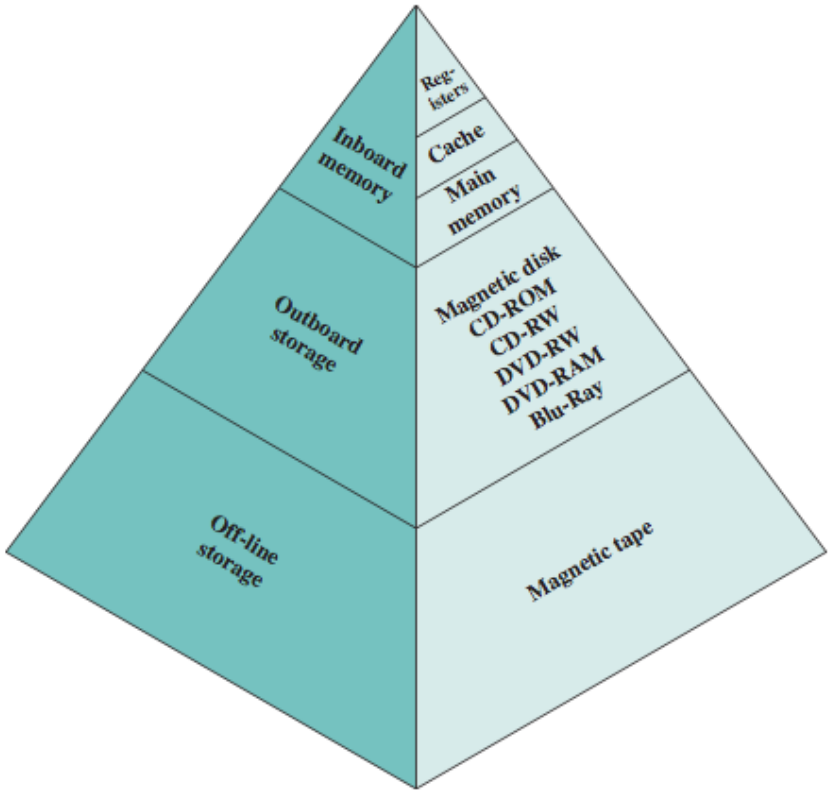
seek time: time for the sector in the request track to reach the head

**Question 7**

Complete

Marked out of 1.00

For memory hierarchy below, which relationship hold when moving downward




Select one or more:

- [x] Decreasing frequency of access by the processor
- [x] Increasing capacity
- [x] Decreasing cost per bit
- [x] Increasing access time
- [ ] the processor accesses more often

**Question 8**

Complete

Marked out of 0.50

Sign-extend number 1011 0101 (8-bit binary) to 16-bit

Answer: B5

**Question 9**

Complete

Marked out of 1.00

In computer organization, the CPU transfer rate is much higher than that of memory. It is easy to match performance of these components by:

Select one:

- ( ) increase the bus speed
- ( ) increase I/O speed
- ( ) Introducing cache memory
- (•) producing faster memory module

**Question 10**

Complete

Marked out of 2.00

Choose correct RAID volume definitions for a request 2T storage.

RAID 0 - Striped volume: 2 x 1T HDDs are needed, enhance data transfer, no fault tolerance, data lost when one HDD fails

RAID 1 - Mirror volume: 2 x 1T HDDs are needed, no data lost when the primary storage fails

RAID5 Volume: 2T HDD + more HDDs to extend storage, no fault tolerance, data lost when one HDD fails

Spanned Volume: At least 3 x 2T HDDs, fault-tolerance, no data lost, no down-time

**Question 11**

Complete

Marked out of 0.50

Which are the correct inputs for XLAT instruction

Select one or more:

- [ ] look-up index must be loaded into DL
- [x] DS:[BX] pointed to look-up table
- [ ] DS:[SI] pointed to look-up table
- [ ] look-up index must be loaded into AL

**Question 12**

Complete

Marked out of 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

tendency to use large cache and prefetch mechanism

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

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

**Question 13**

Complete

Marked out of 1.00

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

```
MOV AX,0020
MOV CX,0010
MUL  CL
```

watch point:

AX = 0200

DX 00FF

CX = 0010

**Question 14**
Complete
Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- [x] a. Head, Track, Sector are key parameters for access data on hard disk
- [x] b. Bits are stored on tracks
- [ ] c. Bits are store randomly on disk surfaces
- [ ] d. Head, Track, Cylinder are key parameters for access data on hard disk

**Question 15**
Complete
Marked out of 0.50

In multiplication instruction, when the source operand is 8 bit, _____ will be multiplied with source.

Select one:

- ( ) Whatever general purpose register
- (•) AL
- ( ) AX
- ( ) BX

**Question 16**
Complete
Marked out of 0.50

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

Select one or more:

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

**Question 17**
Complete
Marked out of 0.50

To encrypt  a byte value, use _____ instruction.

Select one:

- ( ) OR
- (•) AND
- ( ) NOT
- ( ) XOR

**Question 18**
Complete
Marked out of 1.00

Which ones are not correct for static RAM?

Select one or more:

- [x] Cheaper than dynamic RAM because simpler chip controller
- [ ] faster than dynamic RAM because they are made from capacitor
- [x] Cost per bit is lower than dynamic RAM
- [ ] Cost per bit is higher than dynamic RAM

**Question 19**

Complete

Marked out of 0.50

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

Select one:

- comparing
- adding
- subtracting
- dividing

**Question 20**

Complete

Marked out of 1.00

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

Step 1: MOV CX,80

Step 2: MOV CL,80

Step 3: IDIV CX

Step 4: IDIV CL

**Question 21**

Complete

Marked out of 1.00

Which of the following instructions are not legal addressing?

Select one or more:

- MOV CX, [SI]
- MOV AX, [SP+1]
- MOV AX, [BX+SP]
- MOV AX, [DI]

**Question 22**

Complete

Marked out of 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=0Ah 01h

DL=17h 18h

**Question 23**

Complete

Marked out of 1.00

Select correct level for contemporary computer multilevel machine

Level 1 — Microarchitecture level

Level 2 — Instruction set level

Level 0 — Digital logic level

Level 5 — High level programming language

Level 3 — Operating system level

Level 6 — Applications

Layer 4 — Assembly Language level

**Question 24**

Complete

Marked out of 1.50

Which are correct about 32 bit index registers of IA-32 processors:

Select one or more:

- [x] EDI: 32 bit pointer to destination memory in data movement instructions
- [x] ESI: 32 bit pointer to source memory in data movement instructions
- [ ] ESH,EDH: 16 bit pointers to higher memory above 1M
- [x] DI: 16 bit pointer to destination memory in data movement instructions
- [x] SI: 16 bit pointer to source memory in data movement instructions

**Question 25**

Complete

Marked out of 1.00

Structural components of computer include:

Select one or more:

- [ ] DMA
- [x] Memory
- [ ] Interrupt
- [x] System interconnection
- [x] Central processing unit
- [x] I/O

**Question 26**

Complete

Marked out of 1.00

A benchmark program is run on a 40 MHz processor. The executed program consists of 100,000 instruction executions, with the following instruction mix and clock cycle count:

| Instruction Type | Instruction Count | Cycles per Instruction |
|---|---|---|
| Integer arithmetic | 45,000 | 1 |
| Data transfer | 32,000 | 2 |
| Floating point | 15,000 | 2 |
| Control transfer | 8000 | 2 |

Calculate the execution time for this program.

Given:

$$T = I_c \times CPI \times \tau$$

$$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Answer: 16.3

**Question 27**

Complete

Marked out of 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 307h

AL = 80h

**Question 28**

Complete

Marked out of 1.00

Convert 0.1015625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa)

Answer: F7F49

**Question 29**

Complete

Marked out of 1.00

Which is correct about dual-layer DVD?

Select one:

- the same as double-sided DVD
- DVD drives has double laser head for reading from or writing to this disk
- contains layers on both sides of the disk for writing data to
- contains two layers on a single side for writing data to

**Question 30**

Complete

Marked out of 0.50

In multiplication instruction, the upper half of the result is nonzero implies which state of Carry flag and Overflow flag?

Select one or more:

- [ ] CF=0
- [ ] CF=1
- [x] OF=0
- [x] OF=1

**Question 31**

Complete

Marked out of 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: 104

**Question 32**

Complete

Marked out of 0.50

Which of the following instructions are not valid?

Select one or more:

- [ ] MOV AX, SI
- [ ] MOV AX, [BP+2]
- [x] MOV DS, B800h
- [x] MOV SP, SS:[SI+2]

**Question 33**

Complete

Marked out of 1.00

Consider a 16-bit microprocessor, with a 16-bit external data bus, driven by an 10-MHz input clock. Assume that this microprocessor has a bus cycle whose minimum duration equals four input clock cycles. What is the maximum data transfer rate across the bus that this microprocessor can sustain?

Select one:

- ( ) 1 MB/s
- (•) 5 MB/s
- ( ) 4 MB/s
- ( ) 10 MB/s

**Question 34**

Complete

Marked out of 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 ▾

**Question 35**

Not answered

Marked out of 1.00

Convert the 32-bit floating point number C4361000 (in hex) to decimal.

Answer:

**Question 36**

Complete

Marked out of 1.00

Choose correct features for SRAM and DRAM

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

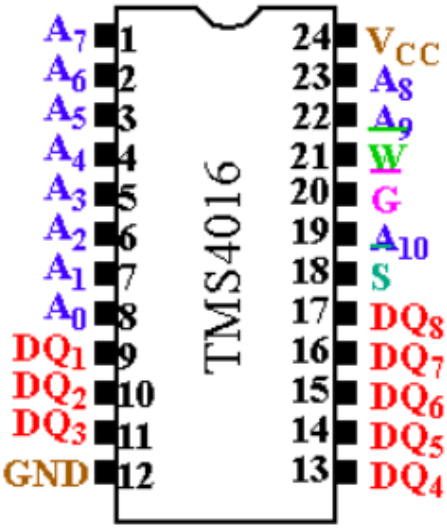
DRAM: Slower access time, cheaper cost per bit, can manufacture with larger size

**Question 37**

Complete

Marked out of 1.00

Choose the correct structure of memory chip as shown below




Note:

DQ: Data pinout

Select one:

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

**Question 38**

Not answered

Marked out of 0.50

Write mask byte (in hex) to set bit 6th, 4th of a byte value with OR instruction (LSB is the 1st bit).

Answer:

**Question 39**

Complete

Marked out of 0.50

8088 is 16 bit processor, the maximum addressable memory is:

Select one:

- 640K
- 640M
- 1024K
- 64M

**Question 40**

Complete

Marked out of 1.00

A memory chip has 12 address pins, determine the maximum memory words of this chip?

Select one:

- 2048K
- 4096
- 2048
- 4000

**Question 41**

Complete

Marked out of 1.50

A benchmark program is run on a 40 MHz processor. The executed program consists of 100,000 instruction executions, with the following instruction mix and clock cycle count:

| Instruction Type | Instruction Count | Cycles per Instruction |
|---|---|---|
| Integer arithmetic | 45,000 | 1 |
| Data transfer | 32,000 | 2 |
| Floating point | 15,000 | 2 |
| Control transfer | 8000 | 2 |

Calculate MIPS rate for this program

Given:

$$\text{MIPS rate} = \frac{I_c}{T \times 10^6} = \frac{f}{CPI \times 10^6}$$

$$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Answer: 16.3

**Question 42**

Complete

Marked out of 1.00

To evaluate processor performance, the following indicators and formulas are used:

Cycles per instruction $$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Time to execute a program $$T = I_c \times CPI \times \tau$$

Or $$T = I_c \times [p + (m \times k)] \times \tau$$

In which:
p: the number of processor cycles needed to decode and execute the instruction
m: the number of memory references needed
k: the ratio between memory cycle time and processor cycle time
τ: cycle time = *1/f*

Which of the following system attributes affects cycle time τ

Select one or more:

- [ ] Compiler technology
- [x] Cache and memory hierarchy
- [ ] Instruction set architecture
- [x] Processor implementation

**Question 43**

Complete

Marked out of 1.50

A system programmer needs to compute 449/2+358/4 (decimal). Instruct him to code in debug (number must be in hex) with the least number of instruction counts.

Step 1: MOV BX,AX

Step 2: MOV AX,01BC

Step 3: ADD AX,BX

Step 4: ADD AX,166

Step 5: SHL AX,CL

Step 6: SHR AX,CL

**Question 44**

Complete

Marked out of 0.50

Write mask byte (in hex) to clear bit 2nd, 3rd, 5th of a byte value with AND instruction (LSB is 1st bit).

Answer: 10101110

**Question 45**

Complete

Marked out of 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: 4096 KB

◄ Announcements

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Pham Truong Giang

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| | |
|---|---|
| **Started on** | Monday, 5 June 2017, 1:12 PM |
| **State** | Finished |
| **Completed on** | Monday, 5 June 2017, 2:22 PM |
| **Time taken** | 1 hour 9 mins |

**Question 1**

Complete

Marked out of 1.20

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, 37h
x_label:
        MOV AL, DL
```

watch point:

...

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

DL=10 38h ▼

DL=8 41h ▼

DL=55h 55h ▼

DL=0FFh 0FFh ▼

**Question 2**

Complete

Marked out of 1.00

The following sequence of instructions are executed. What is the correct value of CF and OF at watch point?

```
        MOV AX,FFF6h
        MOV CX,1000h
        IMUL  CX
```

watch point:

OF= set ▼

CF= undefined ▼

**Question 3**

Complete

Marked out of 0.50

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

Select one or more:

- [x] register
- [ ] immediate data
- [x] memory location
- [ ] all choices are correct

**Question 4**

Complete

Marked out of 1.20

Write mask byte (in hex) to clear bit 2nd, 3rd, 5th of a byte value with AND instruction (LSB is 1st bit).

Answer: 10010111

**Question 5**

Complete

Marked out of 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 call

Select one:

- ( ) intrasegment indirect mode
- ( ) intersegment mode
- ( ) intrasegment mode
- (•) intrasegment direct mode

**Question 6**

Complete

Marked out of 1.20

Convert the 32-bit floating point number 44363800 (in hex) to decimal.

Answer: 1144403968

**Question 7**

Complete

Marked out of 1.00

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

```
MOV AX,FFFF
MOV CX,5
MUL  CX
```

watch point:

Carry flag (CF) = set

Overflow flag (OF) = not defined

**Question 8**

Complete

Marked out of 0.50

In multiplication instruction, when the source operand is 16 bit, how can the result be taken?

Select one:

- from AX:DX pair
- from AX
- from EAX
- from DX:AX pair

**Question 9**

Complete

Marked out of 1.00

Given a row of memory image in debug

```
0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24
```

Initially, AX=BX=CX=DX=0, SI=128

What are value of AX,DX after execution of the following instructions?

```
MOV EDX, [SI]
MOV EAX, [SI+4]
```

DX = 203E

AX = 8099

**Question 10**

Complete

Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- [x] Head, Track, Sector are key parameters for access data on hard disk
- [x] Bits are stored on tracks
- [ ] Head, Track, Cylinder are key parameters for access data on hard disk
- [ ] Bits are store randomly on disk surfaces

**Question 11**

Complete

Marked out of 0.50

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

Select one or more:

- [ ] compare value in AL register with memory location pointed by DS:[SI]
- [ ] decrease DI by 2
- [x] compare value in AL register with memory location pointed by ES:[DI]
- [x] increase DI by 2

**Question 12**

Complete

Marked out of 1.00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

SI = 120, DI = 128

Select correct sequence of instructions to subtract words at [DI] from [SI] then store the result at memory location 12A

Step 1: MOV AX, [SI] ▼

Step 2: SUB AX, [DI] ▼

Step 3: SUB AX, [SI] ▼

Step 4: MOV BX, 012A ▼

**Question 13**

Complete

Marked out of 0.50

The instruction that supports addition when carry exists is

Select one:

- DAS
- SBB
- ADC
- ADD

**Question 14**

Complete

Marked out of 1.00

In computer, how does the processor serve multiple interrupt request from devices?

Select one:

- Each device are assigned an interrupt priority, the device with lower priority will be served.
- Device with higher priority will use interrupt enable flag
- The processor can not process multiple interrupt requests
- Each device are assigned an interrupt priority, the device with higher priority will be served.

**Question 15**

Complete

Marked out of 1.00

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

```
MOV AL, 80
MOV BL, 2
MUL  BL
```

watch point:

Overflow flag (OF) = reset ▾

Carry flag (CF) = set ▾

**Question 16**

Complete

Marked out of 0.50

To test one bit in a byte value without destructing the byte, use _____ instruction.

Select one:

- AND
- OR
- NOT
- TEST

**Question 17**

Complete

Marked out of 1.00

Which are correct about the data registers of IA-32 processors:

Select one or more:

- [ ] Lower halves of the 32-registers an be used as 4 16-bit data registers: AX,BX,CX,DX
- [x] complete 32-bit registers: EAX, EBX, ECX, EDX
- [ ] Lower halves of the 16-registers an be used as 8-bit data registers: AH,AL,BH,BL,CH,CL,DH,DL
- [x] Higher halves of the 32-bit registers can be used as 16-bit registers: EAH,EAL,EBH,EBL,ECH,ECL,EDH,EDL

**Question 18**

Complete

Marked out of 1.20

Convert 0.1015625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa)

Answer: Thay thuong tinh cho em 7d qua mon, em cam on!

**Question 19**

Complete

Marked out of 1.00

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

```
MOV DL,FF
MOV AL,F6
IMUL  DL
```

watch point:

OF = set ▼

CF = set ▼

**Question 20**

Complete

Marked out of 1.00

Choose correct features for SRAM and DRAM

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

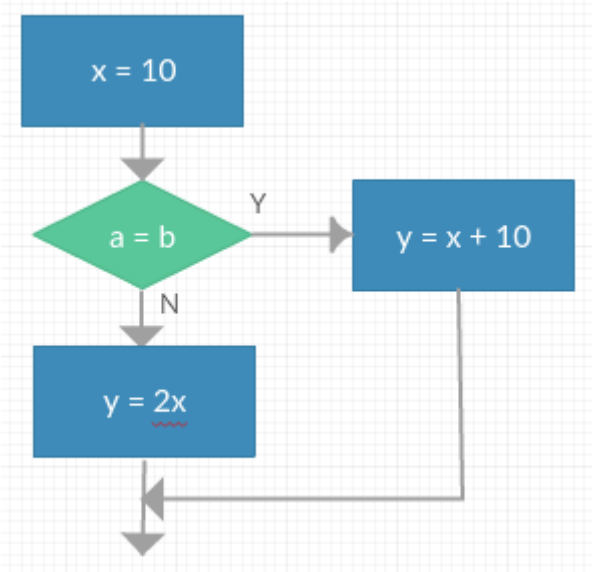
DRAM: Slower access time, cheaper cost per bit, can manufacture with larger size

**Question 21**

Complete

Marked out of 1.20

Given a flowchart of an algorithm:




Select the correct instruction sequence:

Select one or more:

- [ ]
```
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
```

- [ ]
```
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
```

- [x]
```
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
```

**Question 22**

Complete

Marked out of 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) = neither set nor reset

**Question 23**

Complete

Marked out of 0.50

Which are correct action for STOSB string operation if DF is reset (=0)

Select one or more:

- [ ] decrease DI by 1
- [x] Store 8-bit value from AL into memory location pointed by DS:[SI]
- [x] increase DI by 1
- [ ] Store 8-bit value from AL into memory location pointed by ES:[DI]

**Question 24**

Complete

Marked out of 1.00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [x] I/O Equipments
- [ ] Monitor
- [x] CPU
- [x] Memory
- [ ] Bus
- [ ] Punched card reader

**Question 25**

Not answered

Marked out of 1.00

Compute the physical address of the next instruction will be execute if instruction pointer is 091D and code segment located at 1FAF

Answer:

**Question 26**

Complete

Marked out of 1.00

Which set of registers are valid for addressing a stack memory location?

Select one or more:

- [ ] SS:BP
- [x] SS:BX
- [x] DS:SI
- [ ] SS:SP

**Question 27**

Complete

Marked out of 0.50

The instruction that is used for finding out the codes in case of code conversion problems is

Select one:

- ( ) XOR
- ( ) JCXZ
- ( ) XLAT
- (•) XCHG

**Question 28**

Complete

Marked out of 0.50

To clear one or more bits in a byte value, use _____ instruction.

Select one:

- OR
- NOT
- AND
- XOR

**Question 29**

Complete

Marked out of 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,124
```

watch point:

Zero flag (OF) = not defined

Overflow flag (OF) = reset

Sign flag (SF) = set

Carry flag (CF) = set

**Question 30**

Complete

Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 90

**Question 31**

Complete

Marked out of 1.00

Enter debug command to fill 256 bytes in data segment starting from 100 with value 0D

Answer: ADD 0D, 256[100]

**Question 32**

Complete

Marked out of 0.50

Which are correct action for LODSB string operation if DF is reset (=0)

Select one or more:

- [ ] increase SI by 1
- [x] Load 8-bit value at memory location pointed by ES:[DI] into AL
- [ ] Load 8-bit value at memory location pointed by DS:[SI] into AL
- [x] decrease DI by 1

**Question 33**

Complete

Marked out of 1.20

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:

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

**Question 34**

Complete

Marked out of 1.00

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

Select one or more:

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

**Question 35**

Complete

Marked out of 0.50

In multiplication instruction, when the source operand is 8 bit, _____ will be multiplied with source.

Select one:

- (•) Whatever general purpose register
- ( ) BX
- ( ) AL
- ( ) AX

**Question 36**

Complete

Marked out of 1.00

Which are valid based index addressing?

Select one or more:

- [ ] [BX+SI]
- [x] [BX+DI]
- [x] [DX+SI]
- [ ] [SP+DI]

**Question 37**

Complete

Marked out of 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 = 5Dh ▼

AL = 10h ▼

**Question 38**

Complete

Marked out of 1.20

Given a code snippet (ax, bx are none negative integers):

```
if (ax >= bx)
   ax -=bx;
else
   bx -=ax;
```

What is the equivalent logic sequence of instructions in Assembly

Select one:

```
 cmp ax,bx
  jbe  a_label
  sub ax,bx
  jmp x_label
a_label:
  sub bx,ax
x_label:
```

```
cmp ax,bx
  jb  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
  jnbe  a_label
  sub ax,bx
  jmp x_label
a_label:
  sub bx,ax
x_label:
```

**Question 39**

Complete

Marked out of 0.50

The instruction, MOV AX, 0005h belongs to which addressing mode?

Select one:

- Immediate
- direct
- register
- index

**Question 40**

Complete

Marked out of 1.00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 2D

**Question 41**

Complete

Marked out of 0.50

Which of the following instructions are not valid?

Select one or more:

- MOV AX, [BP+2]
- MOV AX, SI
- MOV DS, B800h
- MOV SP, SS:[SI+2]

**Question 42**

Complete

Marked out of 1.00

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

```
MOV AX,0020
MOV CX,0010
MUL  CL
```

watch point:

AX = 0200 ▼

DX 020F ▼

CX = 0010 ▼

**Question 43**

Complete

Marked out of 1.00

Basic functions that a computer can perform including:

Select one or more:

- [x] Data movement
- [ ] Direct memory access
- [x] Control
- [x] Data storage
- [ ] Interrupt
- [x] Data processing

**Question 44**

Complete

Marked out of 1.00

Select correct match for register values at watch points:

```
                MOV AX, 4FCA
                ADD AX, DDA9
watch point #1:
                ADD AH, F3
watch point #2:
                .....
```

watch point #1: AH = 20 ▼

watch point #2: AL = 73 ▼

**Question 45**

Complete

Marked out of 1.20

Hereafter is instruction sequence to compute the sum of 8 bytes starting at memory address 200. Two lines of code are possibly missing. Choose correct one to fill in?

```
01:             _____________; possibly missing code
02:             MOV AL, 0
03:             MOV CX, 8
04: Loop_label:
05:             _____________; possibly missing code
06:             ADD AX, [SI];
07:             INC SI
08:             LOOP Loop_label
```

01: MOV SI, 200 ▼

05: CWD ▼

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| **Started on** | Monday, 5 June 2017, 1:11 PM |
| **State** | Finished |
| **Completed on** | Monday, 5 June 2017, 2:20 PM |
| **Time taken** | 1 hour 9 mins |

**Question 1**

Complete

Marked out of 1.20

Convert the 32-bit floating point number 44363C00 (in hex) to decimal.

Answer: 1144404992

**Question 2**

Complete

Marked out of 0.50

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

Select one:

- SUB
- DEC
- SBB
- INC

**Question 3**

Complete

Marked out of 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, ES = 1D20,

DI = 20A, SI = 208,

BX = 202, AX = 0103, CX = 0003

and flag bit DF = 1

What is the correct value of AX, SI, DI registers after the instruction REP LODSW is executed?

DI = 0202h

AX = 5040h

SI = 5547h

**Question 4**

Complete

Marked out of 0.50

Which are correct action for SCASW string operation if DF is reset (=0)

Select one or more:

- [ ] compare value in AL register with memory location pointed by DS:[SI]
- [ ] decrease DI by 2
- [ ] increase DI by 2
- [x] compare value in AL register with memory location pointed by ES:[DI]

**Question 5**

Complete

Marked out of 1.50

Which are correct about the Pointer registers of IA-32 processors:

Select one or more:

- [x] Base Pointer (BP): The 16 bit pointer refers to stack memory
- [ ] Stack Pointer (SP): the 16 bit pointer to the top of stack
- [x] Instruction Pointer (IP): the 16 bit register points to the next instruction to be execute
- [ ] Base Pointer (EBP): The 32 bit pointer refers to stack memory
- [x] Stack Pointer (ESP): the 32 bit pointer to the top of stack
- [ ] Instruction Pointer (EIP): the 32 bit register points to the next instruction to be execute

**Question 6**

Complete

Marked out of 1.00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [ ] Punched card reader
- [x] Bus
- [ ] Monitor
- [x] Memory
- [ ] I/O Equipments
- [x] CPU

**Question 7**

Complete

Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- [ ] Head, Track, Cylinder are key parameters for access data on hard disk
- [x] Head, Track, Sector are key parameters for access data on hard disk
- [ ] Bits are store randomly on disk surfaces
- [x] Bits are stored on tracks

**Question 8**

Complete

Marked out of 0.50

The instruction that loads effective address is

Select one:

- ( ) LAHF
- ( ) LDS
- (•) LEA
- ( ) LES

**Question 9**

Not answered

Marked out of 1.00

Enter debug command to fill 250 bytes in the memory segment FED5 in computer memory starting from 100 with value AD

Answer:

**Question 10**

Complete

Marked out of 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 = 00000002

EDX = 00000000

EBX = 00021000

**Question 11**

Not answered

Marked out of 1.20

Convert 39887.5625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa) in hex

Answer:

**Question 12**

Complete

Marked out of 0.50

The instruction, MOV AX, 1234h is an example of

Select one:

- Immediate addressing mode
- based index addressing mode
- direct addressing mode
- register addressing mode

**Question 13**

Complete

Marked out of 1.00

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

```
MOV AL, 78
MOV BL, 2
MUL  BL
```

watch point:

Carry flag (CF) = reset ▾

Overflow flag (OF) = reset ▾

**Question 14**

Complete

Marked out of 1.00

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

```
MOV AL,-5
ADD  AL,132
ADD  AL,1
```

watch point:

Zero flag (OF) = set ▾

Overflow flag (OF) = reset ▾

Sign flag (SF) reset ▾

Carry flag (CF) = reset ▾

**Question 15**

Complete

Marked out of 1.00

In computer, how does the processor serve multiple interrupt request from devices?

Select one:

- Device with higher priority will use interrupt enable flag
- Each device are assigned an interrupt priority, the device with higher priority will be served.
- The processor can not process multiple interrupt requests
- Each device are assigned an interrupt priority, the device with lower priority will be served.

**Question 16**

Complete

Marked out of 0.50

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

Select one or more:

- [ ] intersegment jump
- [ ] far jump
- [ ] near jump
- [x] intrasegment mode

**Question 17**

Complete

Marked out of 0.50

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

Select one:

- (•) 8
- ( ) 16
- ( ) None of the choices are correct
- ( ) 4

**Question 18**

Complete

Marked out of 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 is being 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?

SI = 020Ch ▼

DI = 4030h ▼

AX = 020Bh ▼

**Question 19**

Complete

Marked out of 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 [308h ▼]

AL = [70h ▼]

**Question 20**

Not answered

Marked out of 1.00

Physical address of a memory location is 5FE2E. This memory address located by DI register which now has value of 993E. Compute the memory address of data segment register

Answer: [ ]

**Question 21**

Complete

Marked out of 1.00

Basic functions that a computer can perform including:

Select one or more:

- [x] Direct memory access
- [ ] Data movement
- [x] Data processing
- [x] Control
- [ ] Interrupt
- [x] Data storage

**Question 22**

Complete

Marked out of 1.20

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
 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
 jge  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:
```

**Question 23**

Complete

Marked out of 1.20

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  code from ---Start of block to ---End of block

Select one or more:

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

**Question 24**

Complete

Marked out of 0.50

After each execution of POP instruction, the stack pointer is

Select one:

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

**Question 25**

Complete

Marked out of 1.00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

Initially, AX=BX=CX=DX=0, SI=128

What are value of AX,DX after execution of the following instructions?

MOV EDX, [SI]

MOV EAX, [SI+4]

EDX = 99007524

EAX = 203E8099

**Question 26**

Not answered

Marked out of 1.00

Part of memory shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AH follow the execution of this code:

MOV BX, 1D4D

MOV AX, [BX]

Answer:

**Question 27**

Complete

Marked out of 1.00

Which are valid based indexed addressing?

Select one or more:

- [ ] [SP][SI]
- [x] [BX][SI]
- [ ] [BP][SI]
- [ ] [DX][DI]

**Question 28**

Complete

Marked out of 1.20

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=0FFh 11h ▼

DL=10 01h ▼

DL=17h 01h ▼

DL=0Ah 28h ▼

**Question 29**

Not answered

Marked out of 1.00

Part of computer memory are shown in figure.

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, 1D49** executed

Answer:

**Question 30**

Complete

Marked out of 0.50

To set one or more bits in a byte value, use _____ instruction.

Select one:

- NOT
- XOR
- AND
- OR

**Question 31**

Complete

Marked out of 1.00

Choose correct features for SRAM and DRAM

DRAM: Slow access time, cheaper cost per bit, can only manufacture at larger size

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

**Question 32**

Complete

Marked out of 1.00

Major structural components of the CPU include:

Select one or more:

- [x] Arithmetic and Logic Unit
- [ ] Instruction Register
- [ ] Interconnections
- [x] Control Unit
- [x] Instruction Pointer (PC)
- [ ] Registers

**Question 33**

Complete

Marked out of 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: set

Carry flag: 0A

**Question 34**

Complete

Marked out of 1.20

Given a code snippet:

```
if (a>=0 && a <=9)
   x = a + 30h;
else if (a >=10 && a <=15)
   x = a + 55;
```

The logic of the above code snippet in assembly is (with missing lines):

```
01:      CMP DL, 0
02:      ---------- ; possibly missing code
03:      CMP DL, 9
04:      ---------- ; possibly missing code
05:      ADD DL, 30h
06:      ---------- ; possibly missing code
a_label:
08:      CMP DL, 0Fh
09:      ---------- ; possibly missing code
10:      ADD DL, 55
x_label:
12:      MOV AL, DL
...
```

Choose correct missing instructions in the above sequence of instructions

02: JMP a_label ▼

06: JMP x_label ▼

04: empty ▼

09: empty ▼

**Question 35**

Complete

Marked out of 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: AX = 2C07 ▼

watch point #2: BP = FFF8 ▼

watch point #3: SUB AX, [SI] ▼

**Question 36**

Complete

Marked out of 1.20

Given a code snippet to look for a value (from AL) in memory buffer Buff

```
Buff      DB   11,22,33,44,55
          .................
01:       LEA  DI, Buff
02:       ---------- ; possibly missing code
03:       MOV AL,33
04:       MOV CX,5
a_label:
05:       ---------- ; possibly missing code
06:       CMP Byte Ptr [DI],AL
07:       ---------- ; possibly missing code
08:       LOOPNZ a_label
...
```

Choose correct missing instructions in the above sequence of instructions

05: INC DI ▼

07: DEC DI ▼

02: Empty ▼

**Question 37**

Complete

Marked out of 0.50

In multiplication instruction, when the value of source operand is 12 (decimal), the other operand is loaded in AX. Which registers can be used to load source operand?

Select one or more:

- [x] DX
- [ ] BX
- [ ] CL
- [ ] AX
- [ ] DL

**Question 38**

Complete

Marked out of 1.00

The following sequence of instructions are executed. What is the correct value of AX and DX (in hex) at watch point?

```
MOV AX,FFF6h
MOV CX,1000h
IMUL  CX
```

watch point:

AX= FFF6

DX= 6000

**Question 39**

Complete

Marked out of 0.50

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

Select one:

- comparing
- subtracting
- dividing
- adding

**Question 40**

Complete

Marked out of 0.50

To test one bit in a byte value which can be destructive. use _____ instruction.

Select one:

- TEST
- AND
- OR
- NOT

**Question 41**

Complete

Marked out of 0.50

Which are correct input for XLAT instruction

Select one or more:

- [x] DS:[BX] pointed to look-up table
- [ ] DS:[SI] pointed to look-up table
- [ ] look-up index must be loaded into DL
- [ ] look-up index must be loaded into AL

**Question 42**

Complete

Marked out of 0.50

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

Select one or more:

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

**Question 43**

Complete

Marked out of 1.00

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

```
MOV DL,19
MOV AL,F6
IMUL  DL
```

watch point:

OF = reset ▼

CF = reset ▼

**Question 44**

Complete

Marked out of 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 = FF00 ▼

DX = FFBE ▼

**Question 45**

Not answered

Marked out of 1.20

Write mask byte (in hex) to clear the lower 4 bit of a byte value with AND instruction.

Answer:

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| **Started on** | Monday, 5 June 2017, 1:11 PM |
| **State** | Finished |
| **Completed on** | Monday, 5 June 2017, 2:20 PM |
| **Time taken** | 1 hour 9 mins |

**Question 1**

Complete

Marked out of 1.00

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

```
MOV DL,FF
MOV AL,F6
IMUL  DL
```

watch point:

OF = reset ▾

CF = reset ▾

**Question 2**

Complete

Marked out of 0.50

In multiplication instruction, when the source operand is 16 bit, how can the result be taken?

Select one:

- from DX:AX pair
- from EAX
- from AX:DX pair
- from AX

**Question 3**

Not answered

Marked out of 1.20

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, 37h
x_label:
        MOV AL, DL
watch point:
...
```

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

DL=10 Choose...

DL=8 Choose...

DL=55h Choose...

DL=0FFh Choose...

**Question 4**

Complete

Marked out of 1.20

Hereafter is instruction sequence to compute the sum of 8 bytes starting at memory address 200. Two lines of code are possibly missing. Choose correct one to fill in?

```
01:             _____________; possibly missing code
02:             MOV AL, 0
03:             MOV CX, 8
04: Loop_label:
05:             _____________; possibly missing code
06:             ADD AX, [SI];
07:             INC SI
08:             LOOP Loop_label
```

01: MOV [SI],200 ▼

05: CWD ▼

**Question 5**

Complete

Marked out of 0.50

In multiplication instruction, when the source operand is 8 bit, _____ will be multiplied with source.

Select one:

- AX
- BX
- AL
- Whatever general purpose register

**Question 6**

Complete

Marked out of 1.00

Which are valid based index addressing?

Select one or more:

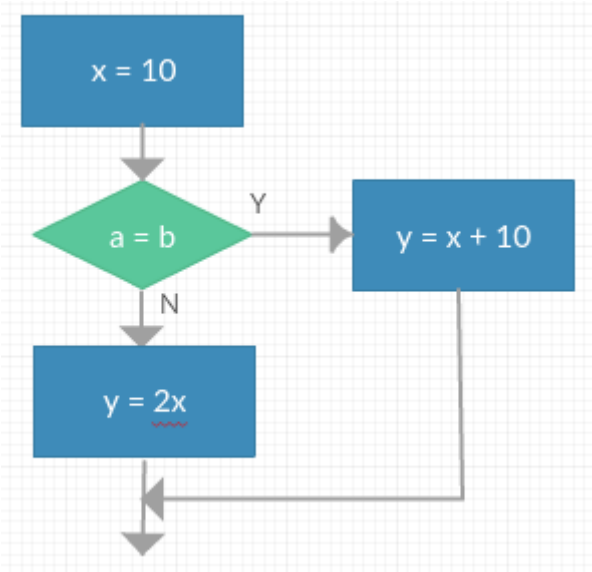
- [BX+DI]
- [DX+SI]
- [SP+DI]
- [BX+SI]

**Question 7**

Not answered

Marked out of 1.20

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
    jz  n_label
    mov cl,1
    shl dl,cl
    jmp e_label
n_label:
    add dl,10
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
    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
```

**Question 8**

Complete

Marked out of 1.00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 2D

**Question 9**

Complete

Marked out of 1.00

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

```
MOV AX,0020
MOV CX,0010
MUL  CL
```

watch point:

AX = 020F

DX 0000

CX = 00FF

**Question 10**

Complete

Marked out of 1.00

Which set of registers are valid for addressing a stack memory location?

Select one or more:

- [ ] DS:SI
- [x] SS:SP
- [x] SS:BP
- [ ] SS:BX

**Question 11**

Complete

Marked out of 1.00

In computer, how does the processor serve multiple interrupt request from devices?

Select one:

- Each device are assigned an interrupt priority, the device with lower priority will be served.
- Device with higher priority will use interrupt enable flag
- Each device are assigned an interrupt priority, the device with higher priority will be served.
- The processor can not process multiple interrupt requests

**Question 12**

Complete

Marked out of 1.00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

Initially, AX=BX=CX=DX=0, SI=128

What are value of AX,DX after execution of the following instructions?

```
MOV EDX, [SI]
MOV EAX, [SI+4]
```

AX = 203E ▼

DX = 8099 ▼

**Question 13**

Complete

Marked out of 1.00

Basic functions that a computer can perform including:

Select one or more:

- [x] Data movement
- [x] Control
- [ ] Interrupt
- [x] Data processing
- [x] Data storage
- [ ] Direct memory access

**Question 14**

Complete

Marked out of 1.00

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

```
MOV AX,FFFF
MOV CX,5
MUL  CX
```

watch point:

Overflow flag (OF) = reset ▼

Carry flag (CF) = reset ▼

**Question 15**

Not answered

Marked out of 1.20

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:

- 
```
    mov cx, 10
a_label:
     dec cx
    cmp cx, 0
    jz e_label
    jmp a_label
e_label:
```

- 
```
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
```

**Question 16**

Not answered

Marked out of 1.20

Write mask byte (in hex) to clear bit 2nd, 3rd, 5th of a byte value with AND instruction (LSB is 1st bit).

Answer:

**Question 17**

Complete

Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 90

**Question 18**

Complete

Marked out of 0.50

To clear one or more bits in a byte value, use _____ instruction.

Select one:

- AND
- XOR
- OR
- NOT

**Question 19**

Complete

Marked out of 0.50

The instruction, MOV AX, 0005h belongs to which addressing mode?

Select one:

- register
- direct
- index
- Immediate

**Question 20**

Complete

Marked out of 1.00

Which are correct about the data registers of IA-32 processors:

Select one or more:

- Lower halves of the 16-registers an be used as 8-bit data registers: AH,AL,BH,BL,CH,CL,DH,DL
- Lower halves of the 32-registers an be used as 4 16-bit data registers: AX,BX,CX,DX
- Higher halves of the 32-bit registers can be used as 16-bit registers: EAH,EAL,EBH,EBL,ECH,ECL,EDH,EDL
- complete 32-bit registers: EAX, EBX, ECX, EDX

**Question 21**

Not answered

Marked out of 1.00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [ ] Monitor
- [ ] Memory
- [ ] I/O Equipments
- [ ] Punched card reader
- [ ] Bus
- [ ] CPU

**Question 22**

Complete

Marked out of 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,124
```

watch point:

Overflow flag (OF) = set ▼

Carry flag (CF) = set ▼

Zero flag (OF) = reset ▼

Sign flag (SF) set ▼

**Question 23**

Complete

Marked out of 1.00

Enter debug command to fill 256 bytes in data segment starting from 100 with value 0D

Answer: F 100 1FF 0D

**Question 24**

Not answered

Marked out of 0.50

Which are correct action for STOSB string operation if DF is reset (=0)

Select one or more:

- [ ] decrease DI by 1
- [ ] Store 8-bit value from AL into memory location pointed by ES:[DI]
- [ ] increase DI by 1
- [ ] Store 8-bit value from AL into memory location pointed by DS:[SI]

**Question 25**

Complete

Marked out of 1.00

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

Select one or more:

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

**Question 26**

Complete

Marked out of 1.00

The following sequence of instructions are executed. What is the correct value of CF and OF at watch point?

```
MOV AX,FFF6h
MOV CX,1000h
IMUL  CX
```

watch point:

CF= reset ▼

OF= reset ▼

**Question 27**

Complete

Marked out of 0.50

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

Select one or more:

- [ ] decrease DI by 2
- [x] compare value in AL register with memory location pointed by ES:[DI]
- [ ] compare value in AL register with memory location pointed by DS:[SI]
- [x] increase DI by 2

**Question 28**

Complete

Marked out of 1.00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

SI = 120, DI = 128

Select correct sequence of instructions to subtract words at [DI] from [SI] then store the result at memory location 12A

Step 1: MOV AX, [SI]

Step 2: SUB AX, [DI]

Step 3: MOV BX, 012A

Step 4: MOV [BX], AX

**Question 29**

Complete

Marked out of 1.00

Select correct match for register values at watch points:

MOV AX, 4FCA

ADD AX, DDA9

watch point #1:

ADD AH, F3

watch point #2:

.....

watch point #2: AL = 73

watch point #1: AH = 30

**Question 30**

Complete

Marked out of 1.00

Compute the physical address of the next instruction will be execute if instruction pointer is 091D and code segment located at 1FAF

Answer: 2040D

**Question 31**

Complete

Marked out of 1.00

Choose correct features for SRAM and DRAM

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

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

**Question 32**

Complete

Marked out of 1.20

Convert the 32-bit floating point number 44363800 (in hex) to decimal.

Answer: 1144403968

**Question 33**

Complete

Marked out of 1.00

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

```
MOV AL, 80
MOV BL, 2
MUL  BL
```

watch point:

Overflow flag (OF) = reset

Carry flag (CF) = reset

**Question 34**

Complete

Marked out of 0.50

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

Select one or more:

- [ ] memory location
- [x] all choices are correct
- [ ] immediate data
- [ ] register

**Question 35**

Complete

Marked out of 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:

Carry flag (CF) = set

Zero flag (OF) = reset

**Question 36**

Complete

Marked out of 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.

AL = 10h

AH = 01h

**Question 37**

Not answered

Marked out of 1.20

Given a code snippet (ax, bx are none negative integers):

```
if (ax >= bx)
   ax -=bx;
else
   bx -=ax;
```

What is the equivalent logic sequence of instructions in Assembly

Select one:

- 
```
cmp ax,bx
 jnbe  a_label
 sub ax,bx
 jmp x_label
a_label:
 sub bx,ax
x_label:
```

- 
```
cmp ax,bx
 jb  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:
```

**Question 38**

Complete

Marked out of 0.50

Which of the following instructions are not valid?

Select one or more:

- [ ] MOV AX, SI
- [x] MOV AX, [BP+2]
- [ ] MOV SP, SS:[SI+2]
- [x] MOV DS, B800h

**Question 39**

Complete

Marked out of 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 call

Select one:

- (•) intrasegment direct mode
- ( ) intersegment mode
- ( ) intrasegment mode
- ( ) intrasegment indirect mode

**Question 40**

Complete

Marked out of 0.50

The instruction that supports addition when carry exists is

Select one:

- ( ) ADD
- (•) ADC
- ( ) DAS
- ( ) SBB

**Question 41**

Not answered

Marked out of 1.20

Convert 0.1015625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa)

Answer:

**Question 42**

Complete

Marked out of 0.50

The instruction that is used for finding out the codes in case of code conversion problems is

Select one:

- JCXZ
- XCHG
- XLAT
- XOR

**Question 43**

Complete

Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- Head, Track, Cylinder are key parameters for access data on hard disk
- Head, Track, Sector are key parameters for access data on hard disk
- Bits are stored on tracks
- Bits are store randomly on disk surfaces

**Question 44**

Complete

Marked out of 0.50

Which are correct action for LODSB string operation if DF is reset (=0)

Select one or more:

- increase SI by 1
- Load 8-bit value at memory location pointed by ES:[DI] into AL
- decrease DI by 1
- Load 8-bit value at memory location pointed by DS:[SI] into AL

**Question 45**

Complete

Marked out of 0.50

To test one bit in a byte value without destructing the byte, use _____ instruction.

Select one:

- AND
- TEST
- NOT
- OR

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

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|---|---|
| **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]

DL=0FFh [41h]

DL=10 [38h]

DL=8 [0FFh]

**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
                   ......
```

watch point #1: [1064]

watch point #2: [266]

watch point #3: [266]

**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:

**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

**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 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]

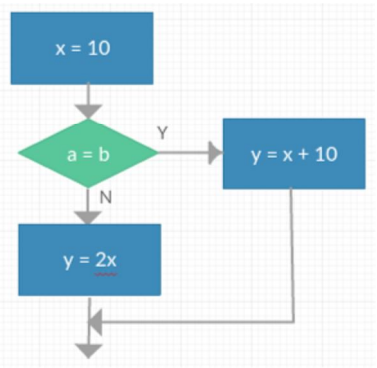
Carry flag [set]

**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

# Nhóm 06-07-08CLC - Kiến trúc máy tính và hợp ngữ

| | |
|---|---|
| **Started on** | Tuesday, 14 March 2017, 10:46 AM |
| **State** | Finished |
| **Completed on** | Tuesday, 14 March 2017, 11:25 AM |
| **Time taken** | 38 mins 36 secs |

**Question 1**
Complete
Marked out of 1.20

What is the correct sequence of instruction cycle?

Step 5: Calculate operand address
Step 2: Decode
Step 4: Execution
Step 3: Fetch operand
Step 1: Fetch opcode
Step 6: Store result

Your answer is partially correct.
You have correctly selected 3.

**Question 2**
Complete
Marked out of 1.00

Which one best describe cache hit and cache miss?

Cache miss ratio: the number of memory accesses that CPU must retrieve from the main memory per the total number of memory accesses
Cache hit ratio: the number of memory accesses that the CPU can retrieve from the cache per the total number of memory accesses

Your answer is correct.

**Question 3**
Complete
Marked out of 1.00

For cache write policies, which are often used for write-hit and write-miss

Write-hit: Write-back
Write-miss: Write-allocate

Your answer is correct.

**Question 4**
Complete
Marked out of 1.00

Choose correct features for SRAM and DRAM

DRAM: Slower access time, cheaper cost per bit, can manufacture with larger size
SRAM: Faster access time, cost more per bit, smaller size

Your answer is correct.

**Question 5**
Complete
Marked out of 1.00

Identify the correct sequence to update a page onto a flash memory?

Step 3: the entire block is being read from flash into RAM then request data in page is update

Step 1: the entire block of flash memory are erased

Step 2: The entire block from RAM then is written back to the flash memory

Your answer is incorrect.

**Question 6**
Complete
Marked out of 1.00

Choose correct set of registers for x86 processor

Data pointer to source memory in extra segment ES: SI

Pointer to variable in stack SS: BP

Instruction pointer CS: IP

Data pointer in data segment DS: BX

Your answer is correct.

**Question 7**
Complete
Marked out of 1.00

Match the definition of flag bits in PSW

contains the carry of 0 or 1 from the leftmost bit after an arithmetic operation: CF

determine the direction for moving or comparing data between memory areas: DF

determine whether an external interrupts are to be ignored or processed: IF

the processor switches to single-step mode: TF

Your answer is correct.

**Question 8**
Complete
Marked out of 1.00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [ ] Monitor
- [x] Memory
- [ ] Punched card reader
- [x] CPU
- [x] Bus
- [x] I/O Equipments

Your answer is correct.

**Question 9**
Complete
Marked out of 1.00

Which is not correct about MOORE law?

Select one or more:

- [ ] The number of transistors that could be put on a single chip was doubling every year
- [x] The number of transistors that could be put on a single chip was triple every year nowadays.
- [x] Likely triple after 2000
- [ ] The number of transistors that could be put on a single chip was doubling every year except 1970s

Your answer is correct.

**Question 10**
Complete
Marked out of 1.00

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

Select one or more:
- [x] Branch prediction
- [x] Pipelining
- [x] Speculative execution
- [ ] Faster CPU internal bus

Your answer is correct.

**Question 11**
Complete
Marked out of 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:
- [ ] To move data directly by DMA
- [x] Make wider data bus path
- [x] Make use of both on-chip and off-chip cache memory
- [x] Using higher-speed bus and us hierarchy

Your answer is correct.

**Question 12**
Complete
Marked out of 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 potential speedup of a program using multiple processor compared to a single processor
- the speedup of a multicore processor when increasing system bus speed
- the maximum speedup of a multicore processor

Your answer is correct.

**Question 13**
Complete
Marked out of 1.00

What are the processor's instruction categories

Select one or more:
- [x] Data processing
- [x] Control
- [ ] Processor - Cache memory
- [x] Processor - I/O
- [x] Processor - Memory
- [ ] Memory - Memory (DMA)

Your answer is correct.

**Question 14**
Complete
Marked out of 1.00

In computer, how does the processor serve multiple interrupt request from devices?

Select one:
- The processor can not process multiple interrupt requests
- Each device are assigned an interrupt priority, the device with higher priority will be served.
- Device with higher priority will use interrupt enable flag
- Each device are assigned an interrupt priority, the device with lower priority will be served.

Your answer is incorrect.

**Question 15**
Complete
Marked out of 1.00

Bus is a shared transmission medium, multiple devices connect to it but only one at a time can successfully transmit. Which component in computer facilitates this operation?

Select one:
- Bus Arbiter
- Programmed I/O
- Direct Memory Access (DMA)
- Bus master

Your answer is correct.

**Question 16**
Complete
Marked out of 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
- PCI bus
- Split system bus into local bus and memory bus
- Multiple-Bus hierarchies

Your answer is correct.

**Question 17**
Complete
Marked out of 1.00

What are the features of direct-mapping cache organization?

Select one or more:
- Thrash --> low hit ratio
- faster
- Simple and inexpensive
- small cache memory

Your answer is correct.

**Question 18**
Complete
Marked out of 1.00

Which ones are not correct for static RAM?

Select one or more:
- Cost per bit is higher than dynamic RAM
- faster than dynamic RAM because they are made from capacitor
- Cheaper than dynamic RAM because simpler chip controller
- Cost per bit is lower than dynamic RAM

Your answer is partially correct.
You have correctly selected 2.

**Question 19**
Complete
Marked out of 1.00

Which one is not correct?

Select one or more:
- EEPROM is erasable by exposing under UV
- PROM is non-volatile memory
- EPROM is erasable electrically
- Flash memory can only be erased electrically byte by byte

Your answer is correct.

**Question 20**
Complete
Marked out of 1.00

Which statements are correct for HDDs?

Select one or more:

- [x] a. Bits are stored on tracks
- [x] b. Head, Track, Sector are key parameters for access data on hard disk
- [ ] c. Bits are store randomly on disk surfaces
- [ ] d. Head, Track, Cylinder are key parameters for access data on hard disk

Your answer is correct.

**Question 21**
Complete
Marked out of 1.00

What is correct about the function of TRIM command in SSD?

Select one:

- ( ) Allow SSD to allocate memory pages in blocks properly for faster access
- ( ) Allow SSD to defragment scattered data stored in separate pages
- (•) Allow OS to notify SSD the presence of occupied blocks of data which are no longer in use and can be erased internally
- ( ) Allow SSD to manage occupied pages and remove them automatically for later use

Your answer is correct.

**Question 22**
Complete
Marked out of 1.00

Which set of registers are valid for addressing a memory location?

Select one or more:

- [x] DS:SI
- [x] DS:BX
- [ ] SS:DI
- [x] CS:IP

Your answer is correct.

**Question 23**
Complete
Marked out of 1.00

Which are valid based index addressing?

Select one or more:

- [x] [BX+SI]
- [ ] [SP+DI]
- [ ] [DX+SI]
- [x] [BX+DI]

Your answer is correct.

**Question 24**
Complete
Marked out of 1.00

Which are valid index addressing?

Select one or more:

- [x] [SI]
- [ ] [DX]
- [ ] [BX]
- [ ] [BP]

Your answer is partially correct.
You have correctly selected 1.

**Question 25**
Complete
Marked out of 1.00

8088 is 16 bit processor, the maximum addressable memory is:

Select one:
- 64M
- 1024K
- 640K
- 640M

Your answer is correct.

**Question 26**
Complete
Marked out of 1.00

Which are correct about the data registers of IA-32 processors:

Select one or more:
- Lower halves of the 16-registers an be used as 8-bit data registers: AH,AL,BH,BL,CH,CL,DH,DL
- complete 32-bit registers: EAX, EBX, ECX, EDX
- Lower halves of the 32-registers an be used as 4 16-bit data registers: AX,BX,CX,DX
- Higher halves of the 32-bit registers can be used as 16-bit registers: EAH,EAL,EBH,EBL,ECH,ECL,EDH,EDL

Your answer is correct.

**Question 27**
Complete
Marked out of 1.50

Which are correct about 32 bit index registers of IA-32 processors:

Select one or more:
- EDI: 32 bit pointer to destination memory in data movement instructions
- ESH,EDH: 16 bit pointers to higher memory above 1M
- DI: 16 bit pointer to destination memory in data movement instructions
- SI: 16 bit pointer to source memory in data movement instructions
- ESI: 32 bit pointer to source memory in data movement instructions

Your answer is correct.

**Question 28**
Complete
Marked out of 1.00

Which statement is correct about interrupt vector table?

Select one or more:
- Store in the ending area of 1024K of the main memory
- Take up 1024 bytes in the main memory
- Store on disk
- Store in the beginning area of the main memory

Your answer is correct.

**Question 29**
Complete
Marked out of 1.00

Part of memory as shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

The value of DX register follows the execution of MOV DX, [1D4D] is 127B. What is the endian type of this computer system

Select one:
- little-endian
- level-endian
- big-endian
- non-endian

Your answer is correct.

**Question 30**
Complete
Marked out of 1.00

Part of memory as shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

The value of BX register follows the execution of MOV BX, [1D49] is F57F. What is the endian type of this computer system

Select one:

- level-endian
- big-endian
- little-endian
- non-endian

Your answer is correct.

**Question 31**
Complete
Marked out of 0.50

The value in CS is 1FD0h what is the location of next instruction from 00000h if Instruction pointer is 3CD4h

Answer: 3CD5H

**Question 32**
Complete
Marked out of 1.00

Select correct items to describe best about CISC

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

Your answer is correct.

**Question 33**
Complete
Marked out of 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 using larger cache blocks and by incorporating prefetching mechanisms into the cache control logic |

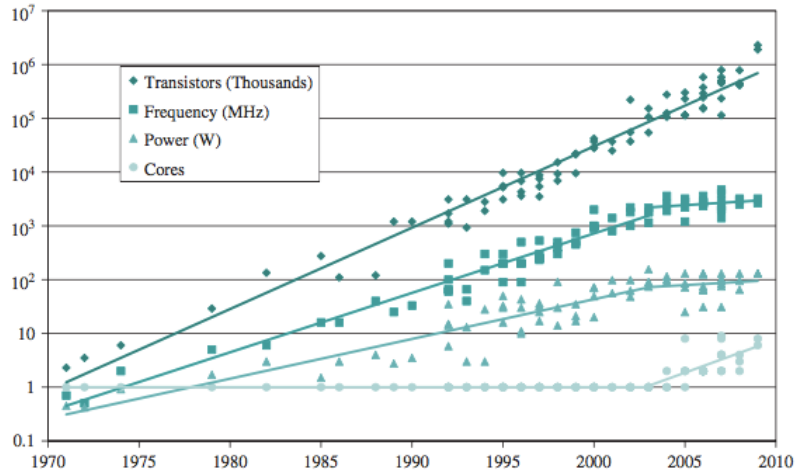
Your answer is correct.

**Question 34**

Complete

Marked out of 1.00

What can be concluded from the following chart of processor trends:




Select one:

- The multi-core processors and level off clock speed help to make heat dissipation of CPU chip less
- The number of transistors in chips produce more heat dissipation
- Heat dissipation in processor chip is increasing year after year since 1970
- The processor speed keeps increasing after 2003

Your answer is correct.

**Question 35**

Complete

Marked out of 1.00

To evaluate processor performance, the following indicators and formulas are used:

Cycles per instruction $$CPI = \frac{\sum_{i=1}^{n}(CPI_i \times I_i)}{I_c}$$

Time to execute a program $$T = I_c \times CPI \times \tau$$

Or $$T = I_c \times [p + (m \times k)] \times \tau$$

In which:
p: the number of processor cycles needed to decode and execute the instruction
m: the number of memory references needed
k: the ratio between memory cycle time and processor cycle time
τ: cycle time = *1/f*

Which of the following system attributes affects $I_c$ (the number of instructions of a program)

Select one or more:

- Cache and memory hierarchy
- Processor implementation
- Instruction set architecture
- Compiler technology

Your answer is correct.

**Question 36**

Complete

Marked out of 1.00

To evaluate processor performance, the following indicators and formulas are used:

Which of the following system attributes affects cycle time τ

Select one or more:

- Processor implementation
- Compiler technology
- Instruction set architecture
- Cache and memory hierarchy

Your answer is correct.

**Question 37**
Complete
Marked out of 1.00

Key parameters to consider when evaluating processor hardware include:

Select one or more:

- [x] reliability
- [x] performance
- [x] power consumption
- [ ] databus size
- [x] size
- [ ] Address bus size
- [x] cost

Your answer is correct.

**Question 38**
Complete
Marked out of 1.00

A memory chip has 12 address pins, determine the maximum memory words of this chip?

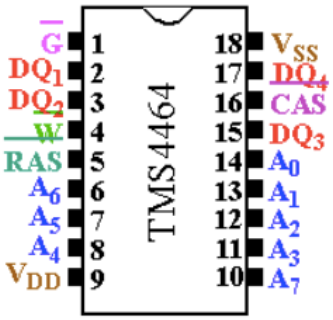
Select one:

- 2048K
- 2048
- 4000
- 4096

Your answer is correct.

**Question 39**
Complete
Marked out of 1.00

Which of the following best describe the memory chip with pinout as shown below:




DQ: Data pinout

Select one:

- DRAM 64Kx4-bit
- SRAM 256Kx1-bit
- DRAM 16Kx4-bit
- SDRAM 64Kx4-bit

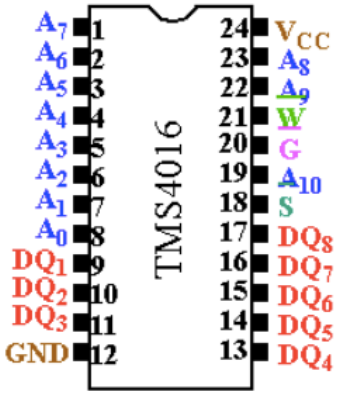
Your answer is correct.

**Question 40**

Complete

Marked out of 1.00

Choose the correct structure of memory chip as shown below




Note:

DQ: Data pinout

Select one:

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

Your answer is correct.

**Question 41**

Complete

Marked out of 1.00

The three key characteristics of memory are: capacity, access time and cost. Which of the following relationships hold for a variety of memory technologies?

Select one or more:

- [x] Faster access time, greater cost per bit
- [ ] Higher capacity, higher access time
- [x] Greater capacity, smaller cost per bit
- [x] Greater capacity, slower access time

Your answer is correct.

**Question 42**

Complete

Marked out of 1.00

A SRAM memory chip labeled 32x8bit. Which of the following is correct pinout regarding address and data lines?

Select one:

- 32 address pins, 3 data pins
- 32 address pins, 4 data pins
- 5 address pins, 3 data pins
- 15 address pins, 8 data pins

Your answer is correct.

**Question 43**

Complete

Marked out of 1.00

In the interconnection system, the number of address lines are governs by

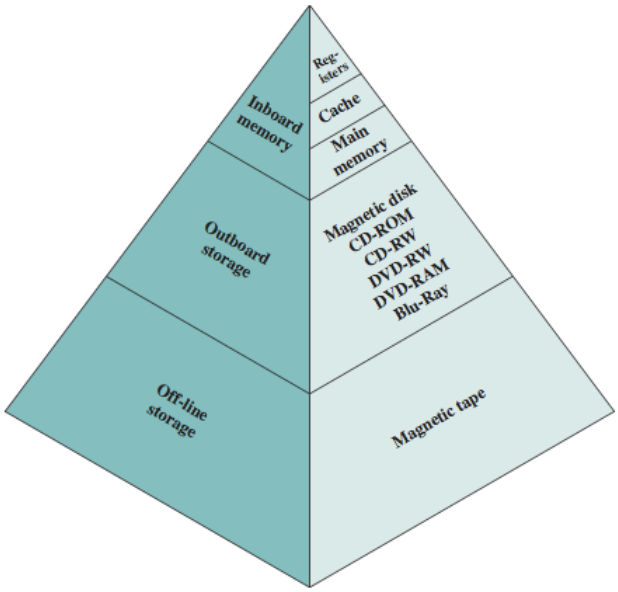
Select one:

- I/O Module
- CPU
- data bus line
- Memory size

Your answer is correct.

**Question 44**
Complete
Marked out of 1.00

For memory hierarchy below, which relationship hold when moving downward




Select one or more:

- [x] Increasing access time
- [x] Decreasing cost per bit
- [x] Decreasing frequency of access by the processor
- [ ] the processor accesses more often
- [x] Increasing capacity

Your answer is correct.

**Question 45**
Complete
Marked out of 1.50

Identified correct addressing mode of the following instructions?

| | |
|---|---|
| MOV AX, BX | Register |
| MOV BP, [BX+SI] | Base relative plus index |
| MOV AX, ARRAY [BX+SI] | Base plus index |
| MOV AX, [BX] | Register indirect |
| MOV AX,[1234h] | Direct |
| MOV AX, 3540h | Immediate |

Your answer is partially correct.
You have correctly selected 4.

**Question 46**
Complete
Marked out of 1.00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 5A2D

**Question 47**
Complete
Marked out of 1.00

Part of memory shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of EAX follow the execution of this code

MOV BX, 1D4C

MOV EAX, [BX]

Answer: 125A

**Question 48**
Complete
Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

The value of SP register is 1D48. What is the value of SI follows the execution of **POP SI**

Answer: 1D48

**Question 49**
Complete
Marked out of 1.00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 1D4F

**Question 50**
Complete
Marked out of 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.

CPI_b 1.92 ▼

CPU Time_a 0.2 ▼

CPU Time_b 0.23 ▼

CPI_a 2.22 ▼

MIPs_b 104 ▼

MIPs_a 90 ▼

Your answer is correct.

**Question 51**

Complete

Marked out of 2.00

Choose correct RAID volume definitions for a request 2T storage.

| | |
|---|---|
| RAID 1 - Mirror volume | 2 x 2T HDDs are needed, no data lost when the primary storage fails |
| Spanned Volume | 2T HDD + more HDDs to extend storage, no fault tolerance, data lost when one HDD fails |
| RAID 0 - Striped volume | 2 x 1T HDDs are needed, enhance data transfer, no fault tolerance, data lost when one HDD fails |
| RAID5 Volume | At least 3 x 2T HDDs, fault-tolerance, no data lost, no down-time |

Your answer is correct.

**Question 52**

Complete

Marked out of 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%
- 15%
- 17%
- 23%

Your answer is correct.

**Question 53**

Complete

Marked out of 1.00

Consider a magnetic disk drive with 8 surfaces, 512 tracks per surface, and 64 sectors per track. Sector size is 1 kB, the average seek time is 10.2 ms and the drive rotates at 3600 rpm. What is average access time. Given: Rotational delay = 1/(2r), where r is the rotational speed in revolutions per second

Answer: 16.3 ms

Return to: 12 March - 18 M...

Nguyen Anh Tuan

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| | |
|---|---|
| **Bắt đầu vào lúc** | Thứ hai, 5 Tháng sáu 2017, 1:13 PM |
| **State** | Finished |
| **Kết thúc lúc** | Thứ hai, 5 Tháng sáu 2017, 2:23 PM |
| **Thời gian thực hiện** | 1 giờ 10 phút |

**Câu hỏi 1**

Hoàn thành

Đạt điểm 0,50

Which are correct action for SCASW string operation if DF is reset (=0)

Select one or more:

- [ ] decrease DI by 2
- [ ] compare value in AL register with memory location pointed by ES:[DI]
- [x] increase DI by 2
- [x] compare value in AL register with memory location pointed by DS:[SI]

**Câu hỏi 2**

Hoàn thành

Đạt điểm 0,50

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

Select one:

- ( ) adding
- ( ) dividing
- (•) comparing
- ( ) subtracting

**Câu hỏi 3**

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 307h ▼

AL = 70 ▼

**Câu hỏi 4**

Hoàn thành

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: BP = FFF8 ▼

watch point #2: AX = 072C ▼

watch point #3: AX = 7943 ▼

**Câu hỏi 5**

Hoàn thành

Đạt điểm 1,00

In computer, how does the processor serve multiple interrupt request from devices?

Select one:

- Device with higher priority will use interrupt enable flag
- The processor can not process multiple interrupt requests
- Each device are assigned an interrupt priority, the device with higher priority will be served.
- Each device are assigned an interrupt priority, the device with lower priority will be served.

**Câu hỏi 6**

Hoàn thành

Đạt điểm 1,20

Given a code snippet:

```
if (a>=0 && a <=9)
   x = a + 30h;
else if (a >=10 && a <=15)
   x = a + 55;
```

The logic of the above code snippet in assembly is (with missing lines):

```
01:      CMP DL, 0
02:      ---------- ; possibly missing code
03:      CMP DL, 9
04:      ---------- ; possibly missing code
05:      ADD DL, 30h
06:      ---------- ; possibly missing code
a_label:
08:      CMP DL, 0Fh
09:      ---------- ; possibly missing code
10:      ADD DL, 55
x_label:
12:      MOV AL, DL
...
```

Choose correct missing instructions in the above sequence of instructions

04: JA a_label ▼

06: JMP x_label ▼

09: JA x_label ▼

02: JB x_label ▼

**Câu hỏi 7**

Hoàn thành

Đạt điểm 0,50

In multiplication instruction, when the value of source operand is 12 (decimal), the other operand is loaded in AX. Which registers can be used to load source operand?

Select one or more:

- [x] DL
- [ ] DX
- [x] CL
- [ ] AX
- [ ] BX

**Câu hỏi 8**

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 = 00FF ▼

**Câu hỏi 9**

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, ES = 1D20,

DI = 20A, SI = 208,

BX = 202, AX = 0103, CX = 0003

and flag bit DF = 1

What is the correct value of AX, SI, DI registers after the instruction REP LODSW is executed?

AX = 4755h ▼

DI = 020Ch ▼

SI = 020Ah ▼

**Câu hỏi 10**

Hoàn thành

Đạt điểm 0,50

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

Select one:

- SUB
- DEC
- INC
- SBB

**Câu hỏi 11**

Hoàn thành

Đạt điểm 0,50

To test one bit in a byte value which can be destructive. use _____ instruction.

Select one:

- OR
- AND
- TEST
- NOT

**Câu hỏi 12**

Không trả lời

Đạt điểm 1,00

Part of memory shown in figure

What is the value of AH follow the execution of this code:

MOV BX, 1D4D

MOV AX, [BX]

Answer:

**Câu hỏi 13**

Hoàn thành

Đạt điểm 1,50

Which are correct about the Pointer registers of IA-32 processors:

Select one or more:

- [x] Stack Pointer (ESP): the 32 bit pointer to the top of stack
- [x] Base Pointer (EBP): The 32 bit pointer refers to stack memory
- [ ] Base Pointer (BP): The 16 bit pointer refers to stack memory
- [ ] Instruction Pointer (IP): the 16 bit register points to the next instruction to be execute
- [ ] Stack Pointer (SP): the 16 bit pointer to the top of stack
- [x] Instruction Pointer (EIP): the 32 bit register points to the next instruction to be execute

**Câu hỏi 14**

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 is being 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...

SI = Chọn...

AX = Chọn...

**Câu hỏi 15**

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 DL,19
MOV AL,F6
IMUL  DL
```

watch point:

OF = set

CF = set

**Câu hỏi 16**

Hoàn thành

Đạt điểm 0,50

Which are correct input for XLAT instruction

Select one or more:

- [ ] look-up index must be loaded into DL
- [ ] DS:[SI] pointed to look-up table
- [x] DS:[BX] pointed to look-up table
- [ ] look-up index must be loaded into AL

**Câu hỏi 17**

Hoàn thành

Đạt điểm 1,20

Convert 39887.5625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa) in hex

Answer: 471C3390

**Câu hỏi 18**

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, 78
MOV BL, 2
MUL  BL
```

watch point:

Carry flag (CF) = set ▼

Overflow flag (OF) = set ▼

**Câu hỏi 19**

Hoàn thành

Đạt điểm 0,50

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

Select one or more:

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

**Câu hỏi 20**

Hoàn thành

Đạt điểm 1,00

Major structural components of the CPU include:

Select one or more:

- [x] Arithmetic and Logic Unit
- [ ] Instruction Pointer (PC)
- [ ] Instruction Register
- [x] Interconnections
- [x] Registers
- [x] Control Unit

**Câu hỏi 21**

Hoàn thành

Đạt điểm 1,00

Basic functions that a computer can perform including:

Select one or more:

- [x] Data processing
- [x] Data movement
- [x] Control
- [ ] Direct memory access
- [x] Data storage
- [ ] Interrupt

**Câu hỏi 22**

Hoàn thành

Đạt điểm 1,00

Enter debug command to fill 250 bytes in the memory segment FED5 in computer memory starting from 100 with value AD

Answer: F FED5:[0100]

**Câu hỏi 23**

Hoàn thành

Đạt điểm 0,50

The instruction, MOV AX, 1234h is an example of

Select one:

- ( ) register addressing mode
- (•) Immediate addressing mode
- ( ) based index addressing mode
- ( ) direct addressing mode

**Câu hỏi 24**

Không trả lời

Đạt điểm 1,00

Part of computer memory are shown in figure.

What is the value of AX register after instruction **MOV AX, 1D49** executed

Answer:

**Câu hỏi 25**

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:

EDX = 00000002

EAX = 00000000

EBX = 00100000

**Câu hỏi 26**

Hoàn thành

Đạt điểm 1,20

Given a code snippet to look for a value (from AL) in memory buffer Buff

```
Buff      DB   11,22,33,44,55
          .................
01:       LEA  DI, Buff
02:       ------------ ; possibly missing code
03:       MOV AL,33
04:       MOV CX,5
a_label:
05:       ------------ ; possibly missing code
06:       CMP Byte Ptr [DI],AL
07:       ------------ ; possibly missing code
08:       LOOPNZ a_label
...
```

Choose correct missing instructions in the above sequence of instructions

05: Empty ▼

02: Empty ▼

07: INC DI ▼

**Câu hỏi 27**

Hoàn thành

Đạt điểm 0,50

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

Select one:

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

**Câu hỏi 28**

Không trả lời

Đạt điểm 1,20

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  code from ---Start of block to ---End of block

Select one or more:

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

**Câu hỏi 29**

Hoàn thành

Đạt điểm 0,50

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

Select one or more:

- intersegment jump
- intrasegment mode
- near jump
- far jump

**Câu hỏi 30**

Hoàn thành

Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of AX and DX (in hex) at watch point?

```
MOV AX,FFF6h
MOV CX,1000h
IMUL  CX
```

watch point:

DX= FFFF ▼

AX= 6000 ▼

**Câu hỏi 31**

Hoàn thành

Đạt điểm 1,20

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
ja  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
jbe 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 32**

Hoàn thành

Đạt điểm 1,00

Which are valid based indexed addressing?

Select one or more:

- [x] [BX][SI]
- [ ] [BP][SI]
- [ ] [DX][DI]
- [ ] [SP][SI]

**Câu hỏi 33**

Hoàn thành

Đạt điểm 1,00

Which statements are correct for HDDs?

Select one or more:

- [ ] Bits are store randomly on disk surfaces
- [x] Head, Track, Cylinder are key parameters for access data on hard disk
- [x] Head, Track, Sector are key parameters for access data on hard disk
- [ ] Bits are stored on tracks

**Câu hỏi 34**

Hoàn thành

Đạt điểm 1,00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [x] I/O Equipments
- [x] CPU
- [ ] Punched card reader
- [ ] Monitor
- [x] Memory
- [x] Bus

**Câu hỏi 35**

Không trả lời

Đạt điểm 1,20

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=0Ah Chọn...

DL=0FFh Chọn...

DL=17h Chọn...

DL=10 Chọn...

**Câu hỏi 36**

Hoàn thành

Đạt điểm 1,00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

Initially, AX=BX=CX=DX=0, SI=128

What are value of AX,DX after execution of the following instructions?

```
MOV EDX, [SI]
MOV EAX, [SI+4]
```

EDX = 203E8099

EAX = 24750099

**Câu hỏi 37**

Hoàn thành

Đạt điểm 0,50

To set one or more bits in a byte value, use _____ instruction.

Select one:

- OR
- NOT
- AND
- XOR

**Câu hỏi 38**

Hoàn thành

Đạt điểm 0,50

The instruction that loads effective address is

Select one:

- LEA
- LDS
- LES
- LAHF

**Câu hỏi 39**

Hoàn thành

Đạt điểm 0,50

After each execution of POP instruction, the stack pointer is

Select one:

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

**Câu hỏi 40**

Hoàn thành

Đạt điểm 1,00

Physical address of a memory location is 5FE2E. This memory address located by DI register which now has value of 993E. Compute the memory address of data segment register

Answer: 564f

**Câu hỏi 41**

Hoàn thành

Đạt điểm 1,20

Write mask byte (in hex) to clear the lower 4 bit of a byte value with AND instruction.

Answer: F0

**Câu hỏi 42**

Hoàn thành

Đạt điểm 1,20

Convert the 32-bit floating point number 44363C00 (in hex) to decimal.

Answer: 728,9375

**Câu hỏi 43**

Không trả lời

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
ADD  AL,132
ADD  AL,1
```

watch point:

Sign flag (SF) Chọn...

Overflow flag (OF) = Chọn...

Carry flag (CF) = Chọn...

Zero flag (OF) = Chọn...

**Câu hỏi 44**

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:

.....

Carry flag 6A

AL 0A

**Câu hỏi 45**

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

**Bắt đầu vào lúc** Thứ hai, 5 Tháng sáu 2017, 1:11 PM
**State** Finished
**Kết thúc lúc** Thứ hai, 5 Tháng sáu 2017, 2:21 PM
**Thời gian thực hiện** 1 giờ 10 phút

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

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

Select one or more:

- [x] all choices are correct
- [ ] memory location
- [ ] register
- [ ] immediate data

**Câu hỏi 2**
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**

Hoàn thà

Đạt điểm 0

**3**

nh

0,5

Which are correct action for LODSB string operation if DF is reset (=0)

Select one or more:

- [x] Load 8-bit value at memory location pointed by DS:[SI] into AL
- [ ] Load 8-bit value at memory location pointed by ES:[DI] into AL
- [ ] increase SI by 1
- [ ] decrease DI by 1

**Câu hỏi 4**

Hoàn thành

Đạt điểm 1,00

Enter debug command to fill 256 bytes in data segment starting from 100 with value 0D

Answer: f 100 100 0d

**Câu hỏi 5**

Hoàn thành

Đạt điểm 0,50

To clear one or more bits in a byte value, use _____ instruction.

Select one:

- OR
- AND
- NOT
- XOR

**Câu hỏi 6**

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, 80
MOV BL, 2
MUL  BL
```

watch point:

Carry flag (CF) = set

Overflow flag (OF) = reset

**Câu hỏi 7**

Hoàn thành

Đạt điểm 1,00

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

Select one or more:

- [x] Branch prediction

**Câu hỏi**

Hoàn thà

Đạt điểm 0

**8**

nh

0,5

The instruction that supports addition when carry exists is

Select one:

- DAS
- ADC
- SBB
- ADD

**Câu hỏi 9**

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,124
```

watch point:

Overflow flag (OF) = set

Zero flag (OF) = reset

Carry flag (CF) = reset

Sign flag (SF) set

**Câu hỏi 10**

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:

Carry flag (CF) = set

Zero flag (OF) = set

**Câu hỏi 11**

Hoàn thành

Đạt điểm 1,20

Convert the 32-bit floating point number 44363800 (in hex) to decimal.

Answer: 7.115032207x10^-34

**Câu hỏi**

Hoàn thà

Đạt điểm 0

**12**

nh

0,5

Which of the following instructions are not valid?

Select one or more:

- [x] MOV SP, SS:[SI+2]
- [ ] MOV AX, [BP+2]
- [x] MOV DS, B800h
- [ ] MOV AX, SI

**Câu hỏi 13**

Hoàn thành

Đạt điểm 0,50

In multiplication instruction, when the source operand is 8 bit, _____ will be multiplied with source.

Select one:

- AX
- BX
- AL
- Whatever general purpose register

**Câu hỏi 14**

Hoàn thành

Đạt điểm 1,00

Part of computer memory is shown in figure

| Address | 1D48 | 1D49 | 1D4A | 1D4B | 1D4C | 1D4D | 1D4E | 1D4F |
|---|---|---|---|---|---|---|---|---|
| Value | 03 | 7F | F5 | 2D | 5A | 12 | 7B | C0 |

What is the value of AX register after instruction **MOV AX, [1D4B]** executed

Answer: 5A2D

**Câu hỏi 15**

Hoàn thành

Đạt điểm 0,50

To test one bit in a byte value without destructing the byte, use _____ instruction.

Select one:

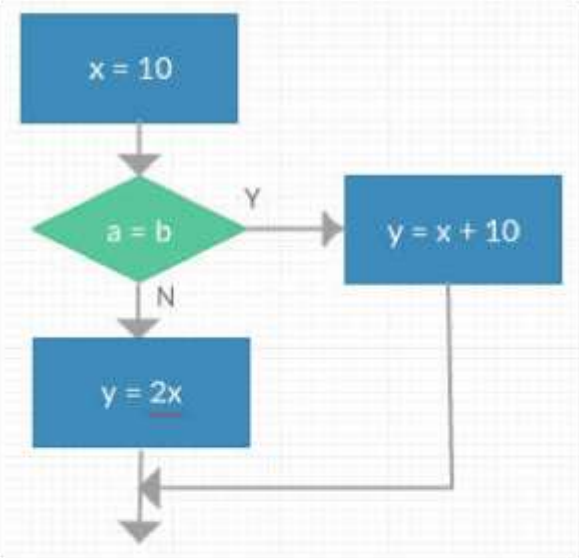
- TEST
- NOT
- OR
- AND

**Câu hỏi 16**

Hoàn thành

Đạt điểm 1,20

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
    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
```

- 
```
    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:
```

```
        add dl,10
        jmp e_label
    n_label:
        mov cl,1
        shl dl,cl
    e_label:
        mov dh,dl
```

**Câu hỏi 17**

Hoàn thành

Đạt điểm 1,00

Which are valid based index addressing?

Select one or more:

- [x] [BX+SI]
- [x] [BX+DI]
- [ ] [SP+DI]
- [x] [DX+SI]

**Câu hỏi 18**

Hoàn thành

Đạt điểm 1,00

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

SI = 120, DI = 128

Select correct sequence of instructions to subtract words at [DI] from [SI] then store the result at memory location 12A

Step 1: MOV AX, [SI] ▾

Step 2: SUB AX, [DI] ▾

Step 3: MOV BX, 012A ▾

Step 4: MOV [BX], AX ▾

**Câu hỏi 19**

Hoàn thành

Đạt điểm 1,00

Which statements are correct for HDDs?

Select one or more:

- [ ] Bits are store randomly on disk surfaces
- [x] Head, Track, Sector are key parameters for access data on hard disk
- [x] Bits are stored on tracks
- [ ] Head, Track, Cylinder are key parameters for access data on hard disk

**Câu hỏi 2**

Hoàn thàn

Đạt điểm 1 0

**0**

h

,0

Which set of registers are valid for addressing a stack memory location?

Select one or more:

- [ ] DS:SI
- [x] SS:BP
- [ ] SS:SP
- [x] SS:BX

**Câu hỏi 21**

Hoàn thành

Đạt điểm 1,20

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

**Câu hỏi 2**

Hoàn thàn

Đạt điểm 1 0

**2**

h

,0

Select correct match for register values at watch points:

MOV AX, 4FCA

ADD AX, DDA9

watch point #1:

ADD AH, F3

watch point #2:

.....

watch point #1: AL = 73

watch point #2: AH = 20

**Câu hỏi 23**

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 AX,FFFF

MOV CX,5

MUL CX

watch point:

Overflow flag (OF) = set

Carry flag (CF) = set

**Câu hỏi 24**

Hoàn thành

Đạt điểm 0,50

The instruction, MOV AX, 0005h belongs to which addressing mode?

Select one:

- register
- direct
- Immediate
- index

**Câu hỏi 2**

Hoàn thàn

Đạt điểm 1 0

**5**

h

,0

In computer, how does the processor serve multiple interrupt request from devices?

Select one:

- Each device are assigned an interrupt priority, the device with lower priority will be served.
- Device with higher priority will use interrupt enable flag
- The processor can not process multiple interrupt requests
- Each device are assigned an interrupt priority, the device with higher priority will be served.

**Câu hỏi 26**

Hoàn thành

Đạt điểm 1,00

Compute the physical address of the next instruction will be execute if instruction pointer is 091D and code segment located at 1FAF

Answer: 2040D

**Câu hỏi 27**

Hoàn thành

Đạt điểm 0,50

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

Select one or more:

- [x] decrease DI by 2
- [ ] compare value in AL register with memory location pointed by DS:[SI]
- [ ] increase DI by 2
- [x] compare value in AL register with memory location pointed by ES:[DI]

**Câu hỏi 2**

Hoàn thàn

Đạt điểm 1 0

8

h

,2

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, 37h
x_label:
        MOV AL, DL
watch point:
...
```

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

DL=8 38h ▾

DL=10 41h ▾

DL=55h 55h ▾

DL=0FFh 0FFh ▾

**Câu hỏi 29**

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,0020
        MOV CX,0010
        MUL  CL
watch point:
```

AX = 0200 ▾

CX = 0010 ▾

DX 0000 ▾

**Câu hỏi 3**

Hoàn thàn

Đạt điểm 1 0

**0**

h

,2

Write mask byte (in hex) to clear bit 2nd, 3rd, 5th of a byte value with AND instruction (LSB is 1st bit).

Answer: E9

**Câu hỏi 31**

Hoàn thành

Đạt điểm 1,00

the memory stack area of a program shown in figure

| Address | 1D50 | 1D51 | 1D52 | 1D53 |
|---|---|---|---|---|
| Value | AF | 90 | 71 | DA |

The value of SP register is 1D50. What is the value of SP follows the execution of **PUSH SI**

Answer: 1D4E

**Câu hỏi 32**

Hoàn thành

Đạt điểm 0,50

In multiplication instruction, when the source operand is 16 bit, how can the result be taken?

Select one:

- from DX:AX pair
- from EAX
- from AX:DX pair
- from AX

**Câu hỏi 33**

Hoàn thành

Đạt điểm 1,20

Given a code snippet (ax, bx are none negative integers):

```
if (ax >= bx)
   ax -=bx;
else
   bx -=ax;
```

What is the equivalent logic sequence of instructions in Assembly

Select one:

- 
```
cmp ax,bx
jnbe  a_label
sub ax,bx
jmp x_label
a_label:
sub bx,ax
x_label:
```

- 
```
cmp ax,bx
jb  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
jbe  a_label
sub ax,bx
jmp x_label
a_label:
sub bx,ax
x_label:
```

**Câu hỏi 3**

Hoàn thàn

Đạt điểm 1 0

**4**

h

,0

Given a row of memory image in debug

0AE8:0120 13 96 D0 E0 D0 E0 A2 1E - 99 80 3E 20 99 00 75 24

Initially, AX=BX=CX=DX=0, SI=128

What are value of AX,DX after execution of the following instructions?

MOV EDX, [SI]

MOV EAX, [SI+4]

DX = 8099 ▼

AX = 0099 ▼

**Câu hỏi 35**

Hoàn thành

Đạt điểm 1,00

Basic functions that a computer can perform including:

Select one or more:

- [ ] Interrupt
- [x] Data movement
- [ ] Direct memory access
- [x] Data processing
- [x] Control
- [x] Data storage

**Câu hỏi 36**

Hoàn thành

Đạt điểm 1,00

What are components of Von Neumann, namely IAS computer?

Select one or more:

- [ ] Monitor
- [x] Bus
- [x] CPU
- [x] Memory
- [x] I/O Equipments
- [ ] Punched card reader

**Câu hỏi 3**

Hoàn thàn

Đạt điểm 1 0

**7**

h

,0

Which are correct about the data registers of IA-32 processors:

Select one or more:

- [x] complete 32-bit registers: EAX, EBX, ECX, EDX
- [ ] Higher halves of the 32-bit registers can be used as 16-bit registers: EAH,EAL,EBH,EBL,ECH,ECL,EDH,EDL
- [x] Lower halves of the 32-registers an be used as 4 16-bit data registers: AX,BX,CX,DX
- [x] Lower halves of the 16-registers an be used as 8-bit data registers: AH,AL,BH,BL,CH,CL,DH,DL

**Câu hỏi 38**

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 = 5Dh ▾

AL = 10h ▾

**Câu hỏi 39**

Hoàn thành

Đạt điểm 1,20

Hereafter is instruction sequence to compute the sum of 8 bytes starting at memory address 200. Two lines of code are possibly missing. Choose correct one to fill in?

```
01:             _____; possibly missing code
02:             MOV AL, 0
03:             MOV CX, 8
04: Loop_label:
05:             _____; possibly missing code
06:             ADD AX, [SI];
07:             INC SI
08:             LOOP Loop_label
```

05: CBW ▾

01: MOV SI, 200 ▾

**Câu hỏi**

Hoàn thà

Đạt điểm 0

**40**

nh

0,5

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 call

Select one:

- intrasegment indirect mode
- intrasegment direct mode
- intersegment mode
- intrasegment mode

**Câu hỏi 41**

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 DL,FF
MOV AL,F6
IMUL  DL
```

watch point:

OF = set

CF = set

**Câu hỏi 42**

Hoàn thành

Đạt điểm 0,50

Which are correct action for STOSB string operation if DF is reset (=0)

Select one or more:

- Store 8-bit value from AL into memory location pointed by DS:[SI]
- decrease DI by 1
- increase DI by 1
- Store 8-bit value from AL into memory location pointed by ES:[DI]

**Câu hỏi 43**

Hoàn thành

Đạt điểm 0,50

The instruction that is used for finding out the codes in case of code conversion problems is

Select one:

- JCXZ
- XOR
- XLAT
- XCHG

**Câu hỏi**

Hoàn thà

Đạt điểm 0

**44**

nh

1,2

Convert 0.1015625 to IEEE 32-bit floating point format (1 sign+ 8 exponent + 23 mantissa)

Answer: 3DD00000

**Câu hỏi 45**

Hoàn thành

Đạt điểm 1,00

The following sequence of instructions are executed. What is the correct value of CF and OF at watch point?

```
MOV AX,FFF6h
MOV CX,1000h
IMUL  CX
```

watch point:

CF= set

OF= set

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| **Thời gian thực hiện** | 15 phút 1 giây |

**Câu hỏi 1**

Hoàn thành

Đạt điểm 1,00

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

10010111 -42

11010110 -46

11010000 -48

**Câu hỏi 2**

Hoàn thành

Đạt điểm 0,50

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

Select one:

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

**Câu hỏi 3**

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: MOV AL, 9B

Step 3: MOV CL,5

Step 4: DIV CL

Result:

AX = CBW

**Câu hỏi 4**

Hoàn thành

Đạt điểm 0,50

To encrypt  a byte value, use _____ instruction.

Select one:

- AND
- XOR
- OR
- NOT

**Câu hỏi 5**

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).

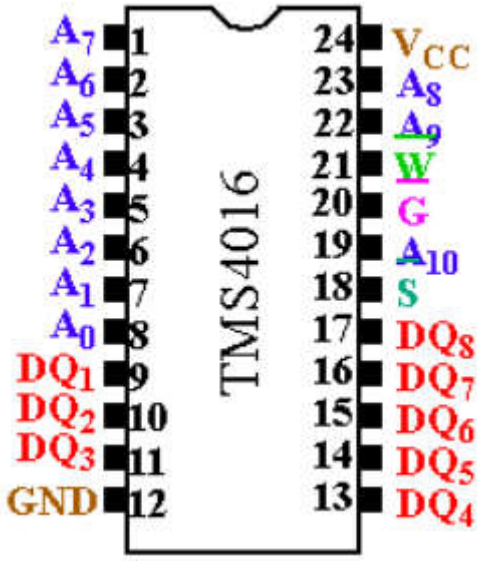
Vẽ sơ đồ logic cho từng trường hợp.

**Câu hỏi 6**

Hoàn thành

Đạt điểm 1,00

Choose the correct structure of memory chip as shown below




Note:

DQ: Data pinout

Select one:

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

**Câu hỏi 7**

Không trả lời

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.

CPU Time_a Chọn...

MIPs_a Chọn...

MIPs_b Chọn...

CPI_b Chọn...

CPU Time_b Chọn...

CPI_a Chọn...

**Câu hỏi 8**

Không trả lời

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) Chọn...

Zero flag (OF) = Chọn...

Carry flag (CF) = Chọn...

**Câu hỏi 9**

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:

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

access time: time for the sector in the request track to reach the head

rotational delay: Chọn...

**Câu hỏi 10**

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 11**

Không trả lời

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:

**Câu hỏi 12**
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:

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

**Câu hỏi 13**
Hoàn thành
Đạt điểm 1,00

Select correct items to describe best about CISC

| | |
|---|---|
| Bytes per instruction | Chọn... |
| Assembly code | small code size |
| Number of clocks per instruction | multi-clock |
| Instruction set | Chọn... |
| code size of program | Chọn... |

**Câu hỏi 14**
Hoàn thành
Đạt điểm 1,00

Match the following hexadecimal numbers to octal

| | |
|---|---|
| 6E | 156 |
| E7 | 347 |
| A9 | 251 |

**Câu hỏi 15**

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
```

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

- 
```
        STD
cp_loop:
    MOVSB
    LOOP cp_loop
```

- 
```
        CLD
    REP MOVSB
```

**Câu hỏi 16**

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 17**

Không trả lời

Đạt điểm 1,00

Convert the following numbers from the base shown to base 10

111 (base 8) Chọn...

777 (base 8) Chọn...

111 (base 2) Chọn...

777 (base 16) Chọn...

FEC (base 16) Chọn...

**Câu hỏi 18**

Không trả lời

Đạt điểm 0,50

After each execution of PUSH instruction, the stack pointer is

Select one:

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

**Câu hỏi 19**

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 20**

Không trả lời

Đạt điểm 1,00

Select correct level for contemporary computer multilevel machine

Level 5 Chọn...

Level 0 Chọn...

Level 1 Chọn...

Layer 4 Chọn...

Level 2 Chọn...

Level 3 Chọn...

Level 6 Chọn...

**Câu hỏi 21**

Không trả lời

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

Temporal locality Chọn...

Spatial locality Chọn...

Chọn...

**Câu hỏi 22**

Không trả lời

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
   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:
```

- 
```
    cmp ax,bx
  jbe a_label
   sub ax,bx
   jmp x_label
 a_label:
   sub bx,ax
 x_label:
```

**Câu hỏi 23**

Không trả lời

Đạt điểm 0,50

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

Select one:

- adding
- subtracting
- dividing
- comparing

**Câu hỏi 24**

Không trả lời

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:

- 17%
- 15%
- 23%
- 10%

**Câu hỏi 25**

Không trả lời

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:

Carry flag (CF) = Chọn...

Zero flag (OF) = Chọn...

**Câu hỏi 26**

Không trả lời

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 = Chọn...

AL = Chọn...

**Câu hỏi 27**

Không trả lời

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:

**Câu hỏi 28**
Không trả lời
Đạt điểm 1,00

Choose correct features for SRAM and DRAM

DRAM Chọn...

SRAM Chọn...

**Câu hỏi 29**
Không trả lời
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:

EDX = Chọn...

EBX = Chọn...

EAX = Chọn...

**Câu hỏi 30**
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 31**
Không trả lời
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
- Pipelining
- Speculative execution
- Branch prediction

**Câu hỏi 32**

Không trả lời

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 #1: Chọn...

watch point #2: Chọn...

watch point #3: Chọn...

**Câu hỏi 33**

Không trả lời

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:
```

CX = Chọn...

BX = Chọn...

**Câu hỏi 34**

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 35**

Không trả lời

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=0FFh Chọn...

DL=10 Chọn...

DL=0Ah Chọn...

DL=17h Chọn...

**Câu hỏi 36**

Không trả lời

Đạt điểm 1,00

Choose correct set of registers for x86 processor

Instruction pointer CS: Chọn...

Data pointer to source memory in extra segment ES: Chọn...

Data pointer in data segment DS: Chọn...

Pointer to variable in stack SS: Chọn...

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

Lab-1 ►

Return to: Mô tả tóm tắt n...