

Xi'an Jiaotong-Liverpool University

西交利物浦大學

MODULE CODE	EXAMINER	DEPARTMENT	TEL
CPT101		COMPUTER SCIENCE	

1st SEMESTER 2022/23 END TERM EXAMINATIONS

BACHELOR DEGREE – Year 2

COMPUTER SYSTEMS

TIME ALLOWED: 2 Hours

INSTRUCTIONS TO CANDIDATES

- 1. This is an open-book exam.**
- 2. Answer all questions.**
- 3. Answers should be written in the answer booklet(s) provided.**
- 4. No calculator is allowed during the examination.**
- 5. Only answers in English are accepted.**

THIS PAPER MUST NOT BE REMOVED FROM THE EXAM HALL.

28. Supply correct arguments and/or instructions to the missing places (i) to (x) in the following bubble sort program segment that compares two integers and swap them, resulting in a sorted list of integers in ascending order. (Total 10 marks: each worth 1 mark)

```

1    int MAX_SZ = 4
2    int intArray[(i)] = {6, 1, 8, 4};
3    (ii) {
4        (iii) esi, (iv) ; load first item's memory address
5        mov    eax, (v) ; move content of memory address
6        (vi) [esi+(vii)], eax ; compare adjacent items
7        (viii) ; jump out to L3
8        (ix) eax, [esi+4] ; otherwise swap contents
9        (x) [esi], eax ; continue swapping
10   }

```

Handwritten annotations in the image include:

- Line 2: *MAX_SZ* written above *(i)*.
- Line 3: *-asm* written to the left of *(ii)*.
- Line 4: *lea* written above *(iii)*, *intArray* written above *(iv)*.
- Line 5: *[esi]* written above *(v)*.
- Line 6: *cmp* written above *(vi)*, *4* written above *(vii)*.
- Line 7: *jl* written above *(viii)*, *L3* written above the instruction.
- Line 8: *xchg* written to the left of *(ix)*, *mov* written above *(ix)*.
- Line 9: *mov* written above *(x)*.

16:30 11月19日周二

收件箱

编辑

Erick Purwanto2024/11/5

Application for RA

Dear Qi, Perhaps we could have a meeting Monday or Tuesday next week to discuss t...

Jianjun Chen (via Learning...2024/11/5

CPT103-2425-S1: Correction to the Lectu...

CPT103-2425-S1<https://core.xjtlu.edu.cn/course/view.php?id=1345> » Forums<http...

Sam Doran (via Learning...2024/11/5

EAP111-2425-S1: Week 9 assessments

EAP111-2425-S1<https://core.xjtlu.edu.cn/course/view.php?id=894> » Forums<http...

dawei liu (via Learning Mal...2024/11/4

CPT101-2425-S1: Further information abo...

CPT101-2425-S1<https://core.xjtlu.edu.cn/course/view.php?id=1344> » Forums<http...

Jianjun Chen (via Learning...2024/11/4

Notification: CPT103-2425-S1 - Assessme...

Jianjun Chen would like to draw your attention to the activity/resource Assessm...

Sam Doran (via Learning...2024/11/4

EAP111-2425-S1: Week 8 CS session: PT2...

EAP111-2425-S1<https://core.xjtlu.edu.cn/course/view.php?id=894> » Forums<http...

SAT2024/11/1

SAT Academic Seminar Series_ Clinic...

Dear SAT Staff and Students, You are warmly welcome to attend the SAT 2024 “...

on to the next.

+++++ sample programming question from 2022 +++++

Fill in the missing places with the correct arguments/instructions for a program that sort integers in an ascending order (10 marks).

esi, intArray

L1:

mov eax,

[esi]

cmp

[esi+4]

, eax

L2

eax, [esi+4]

mov [esi], eax

L2:

add esi, 4

jmp L1

+++++ end of the question+++++

Regards,

Dawei