

CISP310: Assembly Language Programming for Microcomputers (12269 Tak Ayeung)

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1 







Marks:
30































Write the assembly code to implement the following C code. You may assume all variables to be static, and all integers are signed 32-bit integers.

```
int32 i;
int32 j;
int32 k;
do
{
    if (i < j)
    {
        ++i;
    }
    else
    {
        --j;
    }
} while (i + k < j);
```

Answer:

Trebuchet 1 (8 pt)

B *I* U ~~S~~ x_2 x^2      

Answer area for writing assembly code.

Path:

4Marks:
30

Define fields of structures. Use the format S_F for the offset from the beginning of a structure S to field F . A field defined earlier should have a lower address. Assuming all fields are packed, there is no gap between fields. You also need to define S_size as the size of the structure S .

```
struct X
{
    int32 f1;
    char f2[16];
    struct X *f3;
};

struct Y
{
    struct X buffer[4];
    int32 f2;
};
```

Answer:

Trebuchet 1 (8 pt)

B *I* U ~~S~~ x_z x^2      

Path:

5Marks:
50

Implement the shaded code. Assuming all labels related to the struct definitions, local variables and parameters are defined properly.

```
struct X
```

```
{
    int32 f1;
    char f2[16];
    struct X *f3;
};

struct Y
{
    struct X buffer[4];
    int32 f2;
};

void sub1(struct X *px)
{
}

void sub2(struct X *px, struct Y *py)
{
    int i;
    ...
    sub1(&py->buffer[i]);
    py->f2 += 1;
}
```

Answer:

Trebuchet 1 (8 pt)

B *I* U ~~S~~ x_z x^2

Path:

6

Marks:
50

Assume all labels are defined regarding the structure, parameters and local variables.

struct X







```
{
    int32 f1;
    char f2[16];
    struct X *f3;
};






























struct Y
{
    struct X buffer[4];
    int32 f2;
};

void sub3(struct X *pFirst, struct X *pSecond)
{
    pFirst->f3 = pSecond;
}
```

Answer:

Trebuchet 1 (8 pt)

B *I* U ~~S~~ x₂ x²      

Path:

Save without submitting

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