

2018

μ : (15)
μ μ : 04/06/2018
08:00 – 11:00

(13)

- .
- μ A', ' '.
- μ (6) μ μ
(5) μ .
- μ (4) μ μ
(10) μ .
- μ (2) μ μ
(15) μ .
- μ μ μ μ .
- μ μ μ μ ,
<iostream>, <fstream>, <string>, <iomanip> <cmath>.
- μ μ μ C++ μ μ
C++98 (ISO/IEC 14882:1998).
(extensions) μ (compilers) μ
μ .
- μ μ μ μ μ μ . μ ,

ΜΕΡΟΣ Α'

ΑΣΚΗΣΗ 1:

- () $\mu = 15$, $\mu = 50$, $\mu = 20\%$, $\mu = 10\%$.
 $\mu \mu$, :
- () μ μ .
- () $(\mu - 1)$
 $(\mu - 3) =$
- () μ $(\mu - 3)$
- () μ $(\mu - 1)$.

ΑΣΚΗΣΗ 2:

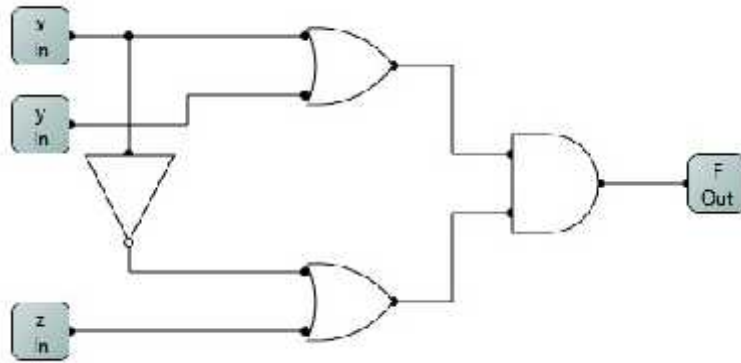
- () $\mu = 36$, $\mu = 01010101$, $\mu = 01010011$.
 $(100100)_2$, μ μ μ
- () $(85)_{10}$, μ μ μ
- () μ μ 2 μ .
- () μ $(\mu - 2)$
- () μ $(\mu - 2)$
- () μ $(\mu - 1)$

ΑΣΚΗΣΗ 3:

- () $\mu \mu$ μ C++, μ μ , $\mu \mu$
 μ μ :
- ```
cout<<trunc(-6.5*pow(2,2))+abs(round(-sqrt(67)));
```
- ( )  $\mu$   $\mu$   $\mu$   $\mu$   $\mu$  integer  $\mu$  : a = -3, b = 2  
c = 4.
- $\mu$   $\mu$   $x$   $y$  (boolean),  
 $\mu \mu$   $\mu$  C++:
- i)  $x = (b!=(3*pow(a,2)-1)) \ \&\& \ ((abs(a)+trunc((float)b/c))==b)$  ;  
ii)  $y = !((b+c)>=a) \ || \ (sqrt(b*8)<=round(a+7.3))$  ;
- ( )  $\mu$   $\mu$   $2$

( ) F(x,y,z)

μ :



( μ 1)

4:

( ) μ

μ μ μ C++:

i) μ **grade** μ 1 μ 100 μ μ .  
 ii) μ **z** μ μ μ 8.

( μ 1)

( )

5 μ

μ μ μ C++

10

μ μ

(4)

/

```

/*1*/ #include<iostream>
/*2*/ using namespace std;
/*3*/ int main(){
/*4*/ int i=0,count=0;
/*5*/ do {
/*6*/ cout<<" μ :";
/*7*/ cin>>num;
/*8*/ if (num%5=0){
/*9*/ count++;
/*10*/ cout<<" μ " <<num<<" 5"<<endl;
/*11*/ }
/*12*/ i++;
/*13*/ } while (i>10);
/*14*/ cin<<count<<endl;
/*15*/ return 0;
/*16*/ }

```

( μ 2)

( )

μ μ μ μ

μ μ μ C++.

μ

μ switch.

μ μ μ μ

```

if (flag==' ')
 cout<<" " <<endl;
else if (flag==' ')
 cout<<" " <<endl;
else if (flag==' ')
 cout<<" " <<endl;
else
 cout<<" μ μ " <<endl;

```

( μ 2)

5:

```

/*1*/ #include<iostream>
/*2*/ #include<string>
/*3*/ using namespace std;
/*4*/ int main(){
/*5*/ string st1,st2;
/*6*/ int s1,s2;
/*7*/ getline(cin,st1);
/*8*/ cout<<st1<<endl;
/*9*/ cin>>st2;
/*10*/ cout<<st2<<endl;
/*11*/ s1=st1.size();
/*12*/ s2=st2.size();
/*13*/ cout<<s1<<endl;
/*14*/ cout<<s2<<endl;
/*15*/
/*16*/ return 0;
/*17*/ }

```

| "   | μ  | μ           | " | st1 | st2, | μ | μ   | C++" | .      |
|-----|----|-------------|---|-----|------|---|-----|------|--------|
| ( ) |    | o           |   |     |      |   |     |      |        |
|     |    | μμ 8        |   | 10  |      |   | μμ  |      | ( μ 2) |
| ( ) |    | o           |   |     |      |   |     |      |        |
|     |    | μμ 13       |   | 14  |      |   | μμ  |      | ( μ 2) |
| ( ) |    | o           |   |     |      |   |     |      |        |
|     | μμ | A ( μμ 15), |   |     |      |   | (3) |      |        |
|     |    | st1.        |   |     |      |   |     |      | ( μ 1) |

6:

μμ μ C++.

```
#include<iostream>
#include<cmath>
#include<iomanip>
using namespace std;
```

```
float ipot(int a, int b) {
```

```
 float ipot;
 ipot=sqrt(pow(a,2)+ pow(b,2));
 return ipot;
```

```
}
```

```
void evperim(int a, int b, float ipot, float &evad, float &perim){
 evad=a*b/2;
 perim=a+b+ipot;
}
```

```
int main() {
```

```
 int plevra1,plevra2;
 float ipotin,evadon,perimeter;
 string message;
 cout<<" : ";
 cin>>plevra1>>plevra2;
 ipotin=ipotinousa(plevra1,plevra2);
```

```
 cout<<" : "<<fixed<<setprecision(2)<<ipotin<<endl;
 cout<<" μ : "<<fixed<<setprecision(2)<<evadon<<endl;
 cout<<" μ : "<<fixed<<setprecision(2)<<perimeter;
 message=check(evadon,perimeter);
 cout<<message;
 return 0;
}
```

```
() o A,
```

**ipotinousa,**

```
main (μμ)
```

( μ 1)

( )

,

evperim

main (

μμ )

μ

μ

.

( μ 1)

( )

o

check,

,

μ

μ

main (

μμ )

μ

μ

«

»

μ

μ

μ

,

μ

μ

«

»

( μ 3)

,

,

7:

$$F(A, B, C) = A'B'C' + AB'C + ABC + A'BC$$

- ( )  $\mu$  (  $\mu$  3 )
- ( ) Karnaugh (  $\mu$  3 )
- ( ) Karnaugh (  $\mu$  4 )

8:

- ( )  $\mu$   $\mu$  C++,  $\mu$  mathitis,  $\mu$  (string),  $\mu$  (integer),  $\mu$  (string),  $\mu$  (boolean).  $\mu$  s\_class. (  $\mu$  3 )
- ( ) 25  $\mu$  s\_class,  $\mu$  ( ). (  $\mu$  2 )
- ( ) (i)  $\mu$  2  $\mu$   $\mu$  (ii)  $\mu$  5.  $\mu$   $\mu$  «  $\mu$  5». (  $\mu$  5 )

|        |                                     |                   |
|--------|-------------------------------------|-------------------|
| $\mu$  | 1 ( )                               | ( 4 $\mu$ $\mu$ ) |
| 3 15 1 |                                     |                   |
| 5 20 1 |                                     |                   |
| 5 40 1 |                                     |                   |
| 2 20 0 |                                     |                   |
| $\mu$  | 1 ( )                               | ( 4 $\mu$ $\mu$ ) |
| $\mu$  | $\mu$ : $\mu$ , $\mu$ $\mu$ , $\mu$ | $\mu$ : $\mu$     |
| $\mu$  | $\mu$ : 25.00                       |                   |







11:

μ  
 μ  
 μ  
 μ 5  
 μ 20  
 μ names. μ 5  
 μ μ prices

μ :

| names |              | prices |      |       |       |      |      |
|-------|--------------|--------|------|-------|-------|------|------|
|       |              | 0      | 1    | 2     | 3     | 4    |      |
| 0     | DFlowerShop  | 0      | 8.30 | 12.00 | 10.50 | 7.25 | 6.50 |
| 1     | TGarden      | 1      | 9.20 | 11.50 | 11.00 | 6.75 | 5.90 |
| 2     | ModGarden    | 2      | 8.30 | 11.20 | 10.80 | 6.60 | 6.50 |
| .     | .            | .      | .    | .     | .     | .    | .    |
| .     | .            | .      | .    | .     | .     | .    | .    |
| 18    | ModernPlants | 18     | 9.10 | 11.10 | 11.30 | 7.75 | 7.90 |
| 19    | FlowerArt    | 19     | 8.30 | 10.20 | 10.80 | 6.80 | 6.00 |

Η 1<sup>η</sup> γραμμή (γραμμή με δείκτη 0) του πίνακα prices αντιπροσωπεύει τις τιμές για 5 διαφορετικά είδη φυτών που έχει δώσει το φυτώριο DFlowerShop π.χ. η τιμή για το 1<sup>ο</sup> είδος φυτού είναι €8.30, του 2<sup>ου</sup> €12.00, του 3<sup>ου</sup> €10.50, του 4<sup>ου</sup> €7.25 και του 5<sup>ου</sup> €6.50.

μμ μ C++, :  
 ) μ names μ  
 prices μ 5  
 .  
 ) μ 5 μ ( μ 3)  
 μ totals. μ ( μ 3)  
 ) μ m10, μ μ  
 μμ totals,  
 main ( μμ ) μ μ  
 μ 5 μ μ  
 10. μ μμ . ( μ 4)  
 ) μ names totals μ μ  
 μ totals. μ μ (3)  
 (insertion sort). , μ μ 5  
 μ μ μ (3)  
 μ μ . μ ( μ 5)

|              |      |       |       |      |      |   |
|--------------|------|-------|-------|------|------|---|
| (            | μ    | )     | (     | 5    | 5    | ) |
| DFlowerShop  | 8.30 | 12.00 | 10.50 | 7.25 | 6.50 |   |
| TGarden      | 9.20 | 11.50 | 11.00 | 6.75 | 5.90 |   |
| ModGarden    | 8.30 | 11.20 | 10.80 | 6.60 | 6.50 |   |
| DesignPlants | 9.00 | 11.30 | 12.50 | 9.50 | 8.60 |   |
| FlowerVision | 8.20 | 10.30 | 10.90 | 6.40 | 6.00 |   |

**12:**

CarSalesLtd,

μ μ C++, :

( ) μ μ μ μ car, μ μ :

- (string)
- μ (string)
- μ (string)
- μ (integer)

(μ , μ , μ μ )

100 askisi12IN.txt

car, μ μ carSt.

( μ 4)

( ) afxisi.txt μ

μ .To μ

μ , μ

askisi12IN.txt μ .

μ .

100

askisi12OUT.txt. afxisi.txt μ

100

askisi12IN.txt.

( μ 4)

( ) μ μ μ μ  
 . μ  
 ( μ 3)  
 ( ) μ μ μ  
 μ μ μ μ μ μ « μ μ  
 ». μ μ μ  
 (sequential search). μ μ μ μ  
 ( μ 4)  
 μ μ μ μ μ μ μ μ μ μ  
 μ μ μ μ μ μ μ μ μ μ

( μ ( 10 μ )  
 ( askisi12IN.txt )  
 HONDA KNP231 WHITE 3250  
 TOYOTA KME134 BLACK 4200  
 BMW MYR654 RED 10200  
 VW LKR343 GREY 7900  
 VOLVO MOE899 BLUE 9400  
 MAZDA KNP805 YELLOW 6750  
 MERCEDES KLL248 WHITE 12500  
 HONDA KRZ378 BLUE 10500  
 NISSAN MYN555 BLACK 11600  
 BMW KNR111 GREY 9900  
 ( afxisi.txt )  
 MYR654 200  
 MOE899 150  
 KRZ378 100  
 KNR111 300  
 KLL248 500  
 ( )  
 KME134

( μ ( 10 μ )  
 ( askisi12OUT.txt )  
 HONDA KNP231 WHITE 3250  
 TOYOTA KME134 BLACK 4200  
 BMW MYR654 RED 10400  
 VW LKR343 GREY 7900  
 VOLVO MOE899 BLUE 9550  
 MAZDA KNP805 YELLOW 6750  
 MERCEDES KLL248 WHITE 13000  
 HONDA KRZ378 BLUE 10600  
 NISSAN MYN555 BLACK 11600  
 BMW KNR111 GREY 10200  
 ( )  
 μ μ :13000 WHITE  
 μ :  
 TOYOTA

| <cmath>             |                                                  |                                                             |
|---------------------|--------------------------------------------------|-------------------------------------------------------------|
|                     |                                                  | $\mu$                                                       |
| <b>sqrt(x)</b>      | $\mu$ x. $\mu$ . $\mu$ $\mu$                     | ( $\mu$ $\mu$ )                                             |
| <b>abs(x)</b>       | $\mu$ x. $\mu$ $\mu$ $\mu$ $\mu$ x.              | ( $\mu$ $\mu$ )                                             |
| <b>pow(x,y)</b>     | $\mu$ x <sup>y</sup> . $\mu$ . $\mu$ $\mu$ $\mu$ | $\mu$ $\mu$                                                 |
| <b>trunc(x)</b>     | $\mu$ x $\mu$ $\mu$ $\mu$ ,                      | $\mu$ $\mu$                                                 |
| <b>round(x)</b>     | $\mu$ x $\mu$ $\mu$ $\mu$ ,                      | $\mu$ $\mu$                                                 |
|                     | $\mu$ . $\mu$ -                                  |                                                             |
| <string>            |                                                  |                                                             |
| <b>size()</b>       | $\mu$ . $\mu$ $\mu$ $\mu$ $\mu$ $\mu$ bytes      | $\mu$ $\mu$                                                 |
| <b>clear()</b>      | $\mu$ . $\mu$ $\mu$ $\mu$ .                      | $\mu$ $\mu$                                                 |
| <b>empty()</b>      | $\mu$ $\mu$ $\mu$ $\mu$ <b>Boolean.</b>          | $\mu$ $\mu$                                                 |
| <b>getline(x,y)</b> | $\mu$ $\mu$ - $\mu$ $\mu$ (x) $\mu$ y.           | 1 $\mu$ (x) $\mu$ $\mu$ ( . . . ) $\mu$ 2 $\mu$ (y) $\mu$ . |