

**Examenul de bacalaureat național 2018
Proba E. d) – Informatică – Limbajul C/C++**

Varianta 9

SUBIECTUL I

1. d
2. a) 2
b) 12, 20, 28, 36
c)
- d)

```

citește n, a
    (numere naturale nenule)
nr ← 0
i ← 1
pentru i ← 1, n execută
    citește b
    (număr natural nenul)
    c ← 0
    cât timp b % 2 = 0 execută
        b ← [b/2]
        c ← c + 1
    dacă c = a atunci
        nr ← nr + 1
scrie nr
    
```

```

1  #include <iostream>
2  using namespace std;
3  int n, a, b, c, i, nr;
4  int main()
5  {
6      cout << "n="; cin >> n;
7      cout << "a="; cin >> a;
8      nr = 0; i = 1;
9      while (i <= n)
10     {
11         cout << "b="; cin >> b;
12         c = 0;
13         while (b % 2 == 0)
14         {
15             b = b / 2;
16             c++;
17         }
18         if (c == a)
19         {
20             nr++;
21         }
22         i++;
23     }
24     cout << "nr=" << nr;
25     return 0;
26 }
    
```

SUBIECTUL II

1. d
2. c
- 3.
- 4.

```

1  #include <iostream>
2  using namespace std;
3  int i, j, a[9][9];
4  int main()
5  {
6      for (i = 1; i <= 9; i++)
7          for (j = 1; j <= 9; j++)
8              a[i][j] = 0;
9      for (i = 1; i <= 9; i++)
10         {
11             for (j = 1; j <= 9; j++)
12                 {
13                     if (i == j) a[i][j] = 1;
14                     else if (i > j) a[i][j] = 3;
15                     else if (i < j) a[i][j] = i;
16                 }
17             for (i = 1; i <= 9; i++)
18                 {
19                     for (j = 1; j <= 9; j++)
20                         {
21                             cout << a[i][j] << " ";
22                         }
23                     cout << endl;
24                 }
25             return 0;
26         }
27 }
    
```


```

1  #include <iostream>
2  using namespace std;
3  struct divizor
4  { int nr, mic;
5  } d;
6  int div, ok, m1, m2;
7  int main()
8  {
9      cout << "nr="; cin >> d.nr;
10     cout << "mic="; cin >> d.mic;
11     ok = 1; m1 = 99; m2 = 0;
12     for (div = 2; div < d.nr; div++)
13     {
14         if (d.nr % div == 0)
15         {
16             ok = 0;
17             if (div < m1) m1 = div;
18             if (div > m2) m2 = div;
19         }
20     }
21     if (ok == 1) cout << "prim";
22     else if (d.mic * d.mic == d.nr) cout << "patrat";
23     else cout << m1 << " " << m2;
24     return 0;
25 }
26 }
    
```

5.

```
1 #include <iostream>
2 #include <cstring>
3 using namespace std;
4 char s[101],a[101],maxi[101];
5 int n,i,ok,m1=0,m2;
6 int main()
7 {
8     cin.get(s,101);
9     n=strlen(s);
10    char *cuv= strtok(s," ");
11    while (cuv)
12    {
13        if ((cuv[0]=='1')||(cuv[0]=='2')||(cuv[0]=='3')||(cuv[0]=='4')||(cuv[0]=='5')||
14            (cuv[0]=='6')||(cuv[0]=='7')||(cuv[0]=='8')||(cuv[0]=='9'))
15            m2=cuv[0]-'0';
16            if (m2>m1)
17            {
18                m1=m2;
19                strcpy(maxi,cuv);
20            }
21            cuv= strtok(NULL," ");
22    }
23    cout<<maxi;
24    return 0;
25 }
```

SUBIECTUL III

1. b
2. (fondante, acadele)
(caramele, dropsuri)
3. 
- 4.

```
int echilibrat(long n)
{
    long aux;
    int c, s1=0, s2=0, i=0, k1=0, k2=0;
    aux=n;
    while (aux)
    {
        c=aux%10;
        if ((i%2==0)&&(c%2==0))
            {
                s1=s1+c;
                k1++;
            }
        if ((i%2!=0)&&(c%2!=0))
            {
                s2=s2+c;
                k2++;
            }
        aux=aux/10;
        i++;
    }
    if (((s1%2==0)&&(k1==n/2))||((s2%2!=0)&&(k2==n/2)))
        return 1;
    else
        return 0;
}
```

```
1 #include <iostream>
2 #include <fstream>
3 using namespace std;
4 ifstream f("Baq.txt");
5 int i,j,n,x,p[10],u[10],nr,maxi=0,ok;
6 int main()
7 {
8     i=0;
9     while (f>>x)
10    {
11        if(p[x]==0)
12        {
13            nr=ok;
14            ok=x;
15            p[x]=i;
16        }
17        else u[x]=i;
18        i++;
19    }
20    for(int i=0;i<=9;i++)
21        if(u[i]-p[i+1]>maxi)
22        {
23            maxi=u[i]-p[i+1];
24        }
25    cout<<maxi<<endl<<ok<<" "<<nr;
26    return 0;
27 }
```