2do Parcial - 29 de noviembre de 2018

Problema 1	8 (1, 2, 2, 3) ptos	

a) No se puede representar con 5 bits.

b) 16

c) 0 10000101 00000100000000000000000

d) 1 10000010 11011000000000000000000

Problema 2	10 (6, 4) ptos	

a)
```
Rara(4)
        Rara(2)
                Rara(0)
                Rara(1)
        Rara(3)
                Rara(1)
                Rara(2)
                        Rara(0)
                        Rara(1)
```

El resultado es 48.

b)

```
function res = cuadradoRec(n)
  if n == 0
     res = 0;
  else
     res = cuadradoRec(n-1) + 2*n - 1;
  end
endfunction
```

Problema 3	6 ptos	

```
function s = sumaPolIt(p,q)
  lp = length(p);
  lq = length(q);
  if lp > lq
     q = [zeros(1,lp-lq) q];
     max = lp;
  else
     p = [zeros(1,lq-lp) p];
     max = lq;
  endif
  s = zeros(1,max);
  for i = 1:max
    s(i) = p(i) + q(i);
  endfor
endfunction
```

Problema 4	6 ptos	

```
function res = alMenosIt(v,elem,n)
  lv = length(v);
  cant = 0;
  i = 1;
  while i <= lv & cant < n
      if v(i) == elem
           cant = cant + 1;
      endif
      i = i + 1;
  endwhile
  if cant < n
      res = 0;
  else
      res = 1;
  endif
endfunction
```

Problema 5	8 ptos	

```
function [catm,catM,hip] = ladosTrianguloIt(n)
  catm = [];
  catM = [];
  hip = [];
  for i = 1:n-2
    for j = i+1:n-1
       for k = j+1:n
           if i*i + j*j == k*k
               catm = [catm, i];
               catM = [catM, j];
               hip  = [hip , k];
           endif
       endfor
    endfor
  endfor
endfunction
```

Solución alternativa:

```
function [catm,catM,hip]=ladosTrianguloIt(n)
  catm=[]; catM=[]; hip=[];
  for i=1:n-2
      for j=i+1:n-1
          k=sqrt(i*i + j*j);
          if (k < (n+1)) && mod(k,1)==0
              catm = [catm, i];
              catM = [catM, j];
              hip  = [hip , k];
          endif
      endfor
  endfor
endfunction
```

Problema 6	8 ptos	

```
function res = fibVectRec(n)
  if n == 1
     res = [1];
  elseif n == 2
     res = [1 1];
  else
     previo = fibVectRec(n-1);
     res = [previo, previo(n-1)+previo(n-2)];
  end
endfunction
```

Problema 7	14 (6,8) ptos	

a)

```
function res = suma_por_columna_rec(f,c,v,n)
  lf = length(f);
  if lf == 0
     res = zeros(1,n);
  else
     res = suma_por_columna_rec(f(2:lf),c(2:lf),v(2:lf),n);
     res(c(1)) = res(c(1)) + v(1);
  end
endfunction
```

b)

```
function [fres,cres,vres] = seleccionar_columna_rec(f,c,v,col)
  lf = length(f);
  if lf == 0
     fres = [];
     cres = [];
     vres = [];
  else
[fres,cres,vres] = seleccionar_columna_rec(f(2:lf),c(2:lf),v(2:lf),col);
     if c(1) == col
        fres = [f(1) fres];
        cres = [c(1) cres];
        vres = [v(1) vres];
     endif
  endif
endfunction
```