Solución examen - 16 de julio de 2016

Problema 1	15 (3,3,3,3,3) ptos	

a) $101011 \rightarrow 43$

b) $1\ 0110\ 1101\ 0111_2 \rightarrow 16D7_{16}$

c) $13 \rightarrow 001101$

d) $0\ 00100010\ 01010000000000000000000 \rightarrow 21x2^{-97}$

e) $1,25 \rightarrow 1x2^0+1x2^{-2} \rightarrow 0\ 01111111\ 01000000000000000000000$

Problema 2	20 (10,10) ptos		

a)

```
function par=EsPar(v)

l=length(v)

if l==0

        par=0;

else

        par = EsPar(v(1:l-1));

        par = mod(par+v(l),2);

end
```

```
function par=EsPar(v)

l=length(v)

if l==0

        par=0;

else

        par=EsPar(v(1:l-1));

        if mod(par+v(l),2)==0

                par=0;

        else

                par=1;

        end

end
```

b)

```
function y=AlgunPar(M)

col=size(M,2)

j=1;

y=0;

while j<=col & y==0

        if EsPar(M(:,j))==1

                y=1;

        end

        j=j+1;
```

end

Problema 3	25 (10, 15) ptos		

a)

```
function ind = IndMayorIt(v)
lv = length(v);
ind=1;
for i=2:lv
        if v(i)>v(ind)
                ind=i;
        end
end
```

b)

```
function ind = IndMayorRec(v)
[ind, maximo] =Mayor(v);


function [ind, maximo] =Mayor(v)
lv=length(v);
if lv==1
        maximo=v(1);
        ind=1;
else
        [ind, maximo] =Mayor(v(2:lv))
        if maximo < v(1)
                ind=1;
                maximo=v(1);
        else
                ind=ind+1;
        end
end
```

Problema 4	20 (10,10) ptos		

a)

```
function [m,n] = DimMin(Mv,Mi,Mj)

l = length(Mv);
m=1;
n=1;
for i=1:l
```

```
        if (Mi(i) > m)
                m = Mi(i);
        end
        if (Mj(i) > n)
                n = Mj(i);
        end
end
```

b)

```
function s = excedeX(Mv,Mi,Mj,x)

s = 0;
l = length(Mv);
suma=0;
i=1;
while ((i <= l) & (suma <= x))
        if ((mod(Mi(i),2) == 0) & (mod(Mj(i),2) == 0))
                suma = suma + Mv(i);
        end
        i = i + 1;
end
if (suma > x)
        s=1;
end
```

Problema 5	20 (10, 10) ptos		

a)

```
function Px = LegIt(n,x)

if n==0
        Px=1;
elseif n==1
        Px=x;
else
        Px_n2=1;
        Px_n1=x;
        for k=2:n
                Px= (2*n-1)/n*x*Px_n1 – (n-1)/n*Px_n2(n-2,x);
                Px_n2=Px_n1;
                Px_n1=Px;
        end
```

end

b)

```
function Px = LegRec(n,x)

if n==0
        Px=1;
elseif n==1
        Px=x;
else
        Px= (2*n-1)/n*x*LegRec(n-1,x) – (n-1)/n*LegRec(n-2,x);

end
```