b) descomposición QR Gram-Schmidt

```
function [Q,R]=qrTest(A,method)

% method = 1 – uso clásico Gram-Schmidt
% 2 - use Modified Gram-Schmidt

[m,n]=size(A);
Q=zeros(m,n); R=zeros(n,n);

switch lower(method)
   case {'cgs','classical'} % Uso clásico Gram-Schmidt

   R(1,1)=norm(A(:,1)); Q(:,1)=A(:,1)/R(1,1);
   for k=2:n
      v=A(:,k);
      for j=1:k-1
         R(j,k)=Q(:,j)'*A(:,k);
         v=v-R(j,k)*Q(:,j);
      end
      R(k,k)=norm(v); Q(:,k)=v/R(k,k);
   end

   case {'mgs','modified'} % Use método modificado Gram-Schmidt

   % Copia data original
   At=A;

   for k = 1:n
      R(k,k) = norm(At(:,k));
      if R(k,k) == 0 break; end
      Q(:,k) = At(:,k)/R(k,k);

      for j = k+1:n
         R(k,j) = Q(:,k)'*At(:, j);
         At(:,j) = At(:,j)-R(k,j)*Q(:,k);
      end
   end

   otherwise
      disp('Unknown method');
end

% Put in reduced QR form
if m>n
   Q=Q(1:m,1:n); R=R(1:n,1:n);
else
   Q=Q(1:m,1:m); R=R(1:m,1:n);
end
```