+Section A

**Tail :: [a] -> [a]**

Tail [] = error “Empty list”

Tail (x:xs) = xs

**(++) :: [a] -> [a] -> [a]**

(++) [ ] [ ] = [ ]

(++) [ ] a = a

(++) (x:xs) ys = x:( xs ++ ys)

**Init :: [a] -> [a]**

Init [ ] = error “Empty list”

Init [x] = [ ]

Init(x:xs) = x:init(xs)

**Reverse :: [a] -> [a]**

Reverse [x] = [x]

Reverse (x:xs) = ((reverse xs) ++ [x])

**Break :: a(a->Bool) -> [a] -> ([a],[a])**

break p []=([],[])  
break p (x:xs)  
 |p x =([],(x:xs))  
 |otherwise =((x:before),after)  
 where  
 (before,after)= break p xs

**Maximum :: Ord a => [a] -> a**

Maximum [a] = a

Maximum (x:xs)

| x > (max xs) = x

| otherwise = max xs

Question 2

(A)

Fails on empty

Fails on null

(B)

Search :: Int -> Tree -> Maybe String

Search x ( Empty) = Nothing

Search x (Single i s)

| x == i = Just s

| otherwise = Nothing

Search x (Many left i s right)

| x == i = Just s

| x > i = search x right

| x < i = search x right

(C)

Search :: Int -> Tree -> Monad String

HOF

hof :: a -> (a->a->a) -> [a] -> a