1a)
Not well-formed, violation of grammar rule [14]: the symbol "<" is not allowed
Inside of CharData
1b)
Not well-formed, violation of grammar rule [5]: the symbols "<" and ">" may not appear inside of tag name.
1c)
Not well-formed, violation of grammar rule [39] (there are four b-Start-tags but only tree b-End-tags)
1d)
Not well-formed, violation of grammar rule [10]: the symbol "<" may not appear inside of an attribute value.
1e)
Well-formed.
1f)
Well-formed.
1g)
Well-formed.
1h)
Not well-formed. Grammar violation of rule [39] just as for c).

2)
```
n=root;
repeat {
  while(lastChild(n)!=NIL)
    {  n=lastChild(n);
       If(nodeType(n)==TEXT_NODE) print(nodeValue(n));
    }
  while(previousSibling(n)=NIL)
    {  n=parent(n);}
  n=nextSibling(n);
  if(nodeType(n)==TEXT_NODE) print(nodeValue(n));
}
```

3)
```
id=1
while (lab(id)!="")
 {
   if (lab(id)=="a") count[id]=1 else count[id]=0;
   for each child in dag(id) do
   {
          count[id] = count[id] + count[child]
   }
   id = id + 1
 }
```

4)
When computing the minimal DAG, we need to determine whether a given subtree has occurred already. If we keep a table of pointers to subtrees that have already occurred, then to check for a given subtree if it is in the table takes worst case time
(# of trees in table) * (# nodes in the subtree)
Which in the worst case is quadratic in the size of the input tree!

With hashing, we only need
(#trees in the hash bucket) * (#nodes in the subtree).

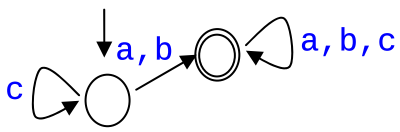
For the example, take hash(tree) = 1 if tree is a leaf and
hash(tree) = 2 if not a leaf and contains no "f"
hash(tree) = 3 in all other cases.

Then
hash(c) = bucket 1
hash(b(c, c)) = bucket 2
hash(f) = bucket 1
hash(b(f,c)) = bucket 3
Etc.
Without hashing: check up to 6 nodes each time.
With hash: check only up to 3 nodes each time!

5)

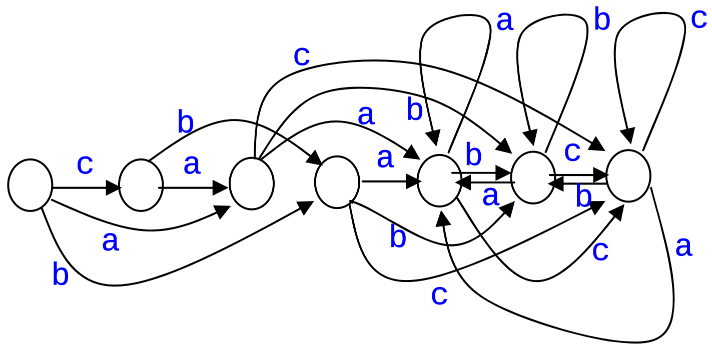
```
Descendants(Node p){
  for(i=1; i<size(p); i++) print( p + i )
}
Children(Node p){
  c = p+1;
  while( c < p+size(p) ) { print( c ); c = c+size(c) }
}
Parent(Node p){
  for(i=1; i<p; i++) if p is in Children(i) then print(i)
}
Following-Siblings(Node p){
  f = p + size(p);
  while( f < Parent(p) + p ) { print( f ); f = f+size(f) }
}
Preceding(Node p){
  for(i=1; i<p; i++) if(p not in Descendants (i)) then print(i)
}
```

6a)
The string "a" is accepted; the string "c" is not accepted.
It is not deterministic (the initial state has two outgoing a-edges)



6b)
c*(a+b)(a+b+c)*

6c)
Not 1-unambigous: Glushkov automaton is non-deterministic.



6d)

(b*(ab)*)*