QUIZ 5 - SECTION 1

Given the following grammar;
- Specify the language,
- Whether it is ambiguous or not,
- Whether it has conflict,
- Type of conflict, on which token?

1) % token A
   
   S:  x          
       | y A        
   x:  y A        
   y:  A          

   SOLUTION 1:
   L = \{ AA \}
   It is ambiguous.
   It has a "reduce/reduce" type of conflict on token $end.

2) % token xyzt
   
   S:  a z        
       | b y z t    
   a:  x y        
   b:  x          

   SOLUTION 2:
   L = \{ xyz, xyzt \}
   It is unambiguous.
   It has a "shift/reduce" type of conflict on token y.

3) % token xyt
   
   S:  a c y      
       | b d y      
   a:  x          
   b:  x          
   c:  t          
   d:  t          

   SOLUTION 3:
   L = \{ xty \}
   It is ambiguous.
   It has a "reduce/reduce" type of conflict on token t
QUIZ 5 – SECTION 2

Given the following grammar:

- Specify the language,
- Whether it is ambiguous or not,
- Whether it has conflict,
- Type of conflict, on which token?

1)  
% token APRS
%%
basla:    x S
         | y P R
x:        A P
y:        A

SOLUTION 1:
L = \{APS, APR\}
It is unambiguous.
It has a “shift/reduce” type of conflict on token P.

2)  
% token ABC
%%
    S:        xzB
            | ywB
x:        A
y:        A
z:        C
w:        C

SOLUTION 2:
L = \{ACB\}
It is ambiguous
It has a “reduce/reduce” type of conflict on token C
Given the following grammar:

1) 

\[
\begin{align*}
    S & : a \mid b \\
    a & : x \\
    b & : x \\
    c & : z
\end{align*}
\]

**SOLUTION 1:**

\[
L = \{ xz y \}
\]

It is ambiguous.  
It has a “reduce/reduce” type of conflict on token $z$.

2) 

\[
\begin{align*}
    S & : a \mid bX \\
    a & : bX \\
    b & : X
\end{align*}
\]

**SOLUTION 2:**

\[
L = \{ XX \}
\]

It is ambiguous.  
It has a “reduce/reduce” type of conflict on token $\text{end}$.

3) 

\[
\begin{align*}
    S & : xC \mid yBCD \\
    x & : AB \\
    y & : A
\end{align*}
\]

**SOLUTION 3:**

\[
L = \{ ABC, ABCD \}
\]

It is unambiguous.  
It has a “shift/reduce” type of conflict on token B.