# Quiz 4-002

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(on back as well)

1. (30) Show that the following context free grammar is ambiguous by picking a string with the same two parse trees (hint: keep your string short). You need to give the two parse trees. **A** is the start symbol. ‘[‘ and ‘]’ characters are terminals, not EBNF.

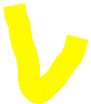
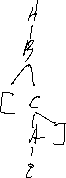
**A → B|ε // ε** is empty string



**B → [ C | [ A ]**



**C → A ]**



1. (30) Draw a line for each EBNF pattern on the left to each string on the right that could have come from that pattern.

**EBNF String (of non-terminals)**

01000001

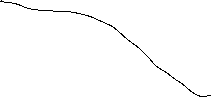


0{0|1}

11011011



{0|11}(0|11)



11001000



[1]{0|1}0

01100001

0{0|1}0

ε // the empty string

1. (15) Give EBNF for all strings having 0 or more **x**’s followed by one or *more* **y**’s, followed by at most one **z**. Positive examples include: xyz, yz, xxxxyyyz, xy, y. Negative examples include zyx, xyxz, xz, and ε. You don’t have to show the production, but one is enough.

