QUIZ 2

Date: 13th February 2003 — Max. Marks 35

1. Calculate the *FIRST* and *FOLLOW* sets for the grammar shown below and then construct the LL(1) parsing table

   $S \rightarrow u\ B\ D\ z$
   $B \rightarrow B\ v \mid w$
   $D \rightarrow E\ F$
   $E \rightarrow y \mid \epsilon$
   $F \rightarrow x \mid \epsilon$ (5 Marks)

2. Please answer all parts of this question *without explicitly drawing the parsing table anywhere.*

   A *no* answer to a question - *Is this grammar LR(1)?*, for example, has to be justified by writing the parsing table entry with a conflict. A *yes* answer requires no explanation. However there is a catch – an incorrect *yes* answer will attract negative marks. You may, of course, choose not to answer the question.

   (a) Is the following grammar (a) LL(1)? (b) SLR(1)? (c) LR(1)?
   $S \rightarrow AaAb \mid BbBa$
   $A \rightarrow \epsilon$
   $B \rightarrow \epsilon$

   (b) Is the following grammar (a) LL(1)? (b) SLR(1)? (c) LALR(1)?
   $S \rightarrow Aa \mid bAc \mid dc \mid bda$
   $A \rightarrow d$

   (c) Is the following grammar (a) SLR(1)? (b) LALR(1)? (c) LR(1)?
   $S \rightarrow Aa \mid bAc \mid Bc \mid bBa$
   $A \rightarrow d$
   $B \rightarrow d$

   (d) Is the following grammar (a) LALR(1)? (b) LR(1)? (c) LL(1)?
   $S \rightarrow (\ X \mid E\ ] \mid F\ )$
   $X \rightarrow E\ ) \mid F\ ]$
   $E \rightarrow A$
   $F \rightarrow A$
   $A \rightarrow \epsilon$ ($4 \times 6 = 24$ Marks)

3. Show a grammar which is LL(2) but not LR(1). You might help correction by giving a brief and clear explanation of your answer. (6 Marks)