



AMERICAN INTERNATIONAL UNIVERSITY – BANGLADESH (AIUB)

Faculty of Science and Technology (FST)

Department of Computer Science

Course Name: Compiler Design

Section: [F]

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Term: Mid-Term

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1. Check the grammar below and justify whether the grammar is LL(1) or not:

$$\begin{aligned} S &\rightarrow SaA \mid A \\ A &\rightarrow AbB \mid B \\ B &\rightarrow cSd \mid e \end{aligned}$$

2. Which of the following grammars are ambiguous? Show **LL(1) parsing table** using **First** and **Follow** to determine whether the grammar is ambiguous or not.

1) $S \rightarrow 0A \mid 1B$
 $A \rightarrow 0AA \mid 1S \mid 1$
 $B \rightarrow 1BB \mid 0S \mid 0$

2) $S \rightarrow aSb \mid bSa \mid SS \mid \epsilon$

3) $S \rightarrow 1S1 \mid T$
 $T \rightarrow 1X1 \mid X$
 $X \rightarrow 0X0 \mid 1$

Instructions For Preparing Your Assignment:

- Your assignment must be in the form of **handwritten hard copy**, not the typing copy.
- You can use a **scanner to create a PDF file** of your completed handwritten assignment, or you can **use your smartphone to take images of your work that can be compiled in a Word document and convert it into PDF**. Please check the video tutorial who cannot understand how to make a PDF.
 - ~ Scanner: (<https://www.youtube.com/watch?v=fPp8Ox7qfCM>)
 - ~ Images: (<https://www.youtube.com/watch?v=5K7xxQ8np90>)
- Rename the PDF as your student ID_CD_Asg_Final_Sec (**Example: 19-12345-2_CD_Asg_Final_F.pdf**)
- **Copy and paste is prohibited**. I will check everyone's assignment carefully.
- Submit the assignment on 10 December 2021 (Friday) 09:59 PM. **Deadline will be strictly followed** and marks will be deducted who misses submission deadline.
- You must **add a cover page**. The key contents of your cover page should be (Course Title, Submission Type [e.g. Final-Assignment], Your Name, ID, Section, Department and Date of Submission).

Instructions For Submitting Your Assignment:

- 1) Complete all the tasks and create a PDF of your assignment.
- 2) Rename the PDF as your student ID_CD_Asg_Final_Sec (Example: 19-12345-2_CD_Asg_Final_F.pdf)
- 3) Attach the file here (**Add Work**).
- 4) **Turn in / Hand in.**
- 5) **Submit the assignment on 10 December 2021 (Friday) 09:59 PM.**
- 6) For Submission Instruction, please check the video tutorial (<https://www.youtube.com/watch?v=hgJAUUpKkfM>)