

Midterm 1

COMPILER DESIGN BY DR. SAEED PARSA

IRAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Important Notes

- ▶ Any similarity to other's answers will lead you to get lower score, so please answer all question by yourself.
- ▶ You have **75 minutes** time plus 5 minutes for uploading your documents.
- ▶ Question number = (sum of your student ID digits) mod 3 + 1
 - ▶ For example if your student number is 123 then your question's section number is $(1+2+3) \bmod 3 + 1 = 1$

Your Personal Info

- ▶ Enter your **full name**:
- ▶ Enter your **student ID**:
- ▶ Enter your **question section number**:

Question 1 (Explain)

4

Score: 25%

1. What are the steps of a compiler? Explain each step in 1 or 2 lines.
2. What is ANTLR? Explain how it works.
3. What is lexical analysis and how it works.

Upload a PDF using cam scanner or similar apps.

Question 2 (Lexical Analysis)

5

IUST - Compiler Design

Score: 25%

1. Write a lexical function to accept all binary strings **ending** with 101.
2. Write a lexical function to accept all binary strings which **starting** with 001.
3. Write a lexical function to accept all binary strings **including** 110.

Upload a PDF using cam scanner or similar apps.

Question 3 (ANTLR and Python)

6

Score: 50%

1. Write a program using **ANTLR and Python** to add your student ID to all comments in a Java file.
2. Write a program using **ANTLR and Python** to convert multi-line comments (`/* */`) to single line comments (`//`) in a Java file.
3. Write a program using **ANTLR and Python** to delete all comments and blank lines from a Java file.

Upload your codes and screenshots.