

**Subject Code: ACSBS0502**

**Roll No:**

[illegible]

**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(An Autonomous Institute)

Affiliated to Dr. A.P. J. Abdul Kalam Technical University, Uttar Pradesh,  
Lucknow

**Course- B.Tech**

### Branch- CSBS

Semester- V<sup>th</sup>**Sessional Examination: 1st**

**Subject Name: Compiler Design**

**Year- (2022 - 2023)**

Time: 1.15 Hours

**Max. Marks:30**

**General Instructions:**

- This Question paper consists of 02 pages & 05 questions. It comprises three Sections -A, B, &C. You are expected to answer them as directed.
- Section A -Q.No. 1 is of one 1 mark each & Q. No. 2 carries 2 mark each.
- Section B- Q. No. 3 carries 5 marks each.
- Section C - Q.No4 & 5 carries 6 marks each. Attempt any one part a or b

|   |  | <b><u>SECTION – A</u></b> |            | <b>[08Marks]</b> |  |
|---|--|---------------------------|------------|------------------|--|
| <b>1. All questions are compulsory-</b> |  |                           |            | <b>(4×1=4)</b>   |  |
| <b>a.</b>                               | Which of the following is used for grouping of characters into tokens?<br>i. Parser<br>ii. Code generator<br>iii. Lexical analyser<br>iv. Code generator   | <b>(1)</b>                | <b>CO1</b> |                  |  |
| <b>b.</b>                               | A _____ is a software utility that translates code written in higher language into a low level language.<br>i. Text editor<br>ii. Compiler<br>iii. Converter<br>iv. Code optimizer   | <b>(1)</b>                | <b>CO1</b> |                  |  |
| <b>c.</b>                               | Which of the following methods is used by the bottom-up parser to generate a parse tree?<br>i. Leftmost derivation<br>ii. Rightmost derivation<br>iii. Leftmost derivation in reverse<br>iv. Rightmost derivation in reverse | <b>(1)</b>                | <b>CO2</b> |                  |  |
| <b>d.</b>                               | Which two functions are required to construct a parsing table in predictive parsing technique?<br>i. CLOSURE() and GOTO ()<br>ii. FIRST() and FOLLOW()<br>iii. ACTION() and GOTO()<br>iv. None of these                      | <b>(1)</b>                | <b>CO2</b> |                  |  |
| <b>2. All questions are compulsory-</b> |  |                           |            | <b>(2×2=4)</b>   |  |
| <b>a.</b>                               | Define Translator?   | <b>(2)</b>                | <b>CO1</b> |                  |  |

|                    |                      |                  |     |
|--------------------|----------------------|------------------|-----|
| b.                 | Define Backtracking? | (2)              | CO2 |
| <b>SECTION – B</b> |                      | <b>[10Marks]</b> |     |

|                    |  |                  |     |
|--------------------|--|------------------|-----|
| 3.                 | Answer any <u>two</u> of the following-  | (2×5=10)         |     |
| a.                 | Explain token, Patterns, Lexemes and Ambiguity?  | (5)              | CO1 |
| b.                 | Explain Operator Precedence Parser and Precedence function?  | (5)              | CO2 |
| c.                 | Consider the following grammar- $E \rightarrow E - E/E$<br>$\rightarrow E \times E/id$<br>Parse the input string id – id x id using a shift-reduce parser. | (5)              | CO2 |
| <b>SECTION – C</b> |  | <b>[12Marks]</b> |     |
| 4                  | Answer any <u>one</u> of the following-  | (1×6=6)          |     |
| a.                 | Explain phases of compiler?  | (6)              | CO1 |
| b.                 | Explain Front end and Back end of compiler?  | (6)              | CO1 |
| 5.                 | Answer any <u>one</u> of the following-  | (1×6=6)          |     |
| a.                 | Give difference between Top-Down and Bottom-Up Parser?   | (6)              | CO2 |
| b.                 | Explain LR(0), SLR, LALR and CLR parser?   | (6)              | CO2 |