Bangladesh University

Department of Computer Science and Engineering

Mid Term Examination, Spring Semester 2026

Course code: CSE- 3201

Course Title: Compiler Design

Batch: 69th (Evening)

Time: 1.5 hours

Total Marks: 4 * 5 = 20

Instructions:

1. *Read the questions carefully and answer accordingly.*
2. *If you have a problem understanding any question, please ask your teacher, not your classmate.*

Answer any four (4) from the following questions

1. Discuss in detail about the output of each phase of compiler for the expression

   a:= c / e + d – 30 * b * h 5

2. Suppose a robot can be instructed to move one step east, north, west, or south from its current position. A sequence of such instructions is generated by the following grammar: 5

   seq → seq instr | begin

   instr → east | north | west | south

   Changes (Syntax Directed Translation) in the robot's position are determined by the input: begin north north north east east south west south

3. Consider the Grammar: 3+2=5

   E → E + T | T

   T → T * F | F

   F → (E) | id

   For the string w = (id * id) * (id + id), Construct-

   i) rightmost derivation

   ii) parse tree

4. Consider the Grammar: 5

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid 0 \mid 1 \mid 2 \mid .... \mid 8 \mid 9$

Construct a syntax-directed translation scheme that translates arithmetic expressions from infix notation into postfix notation. Give annotated parse tree for the input 7 *8 – 4 * 6 + 3

5. Discuss all the phases of the compiler with a diagram. 5