Independent University, Bangladesh
CSE 313 (Compiler Construction) Midterm Autumn 2021 Total: 20
Instructor: Ms. Kaniz Fatema, Bijoy Rahman Arif Time: 1h30m + 10m

Answer Any 4 questions out of 5. All have equal marks.

1. Find the First and Follow of the following grammar:

S → ACB / CbB / Ba
A → da / BC
B → g / ∈
C → hS / ∈

2. Consider the following grammar:

S → aS/ bA
A → ∈

Show the detail procedure of parsing ‘a b b’ in LL(1) parsing.

3. Consider the following parsing table with conflicts:

	(	)	$
S	S → (S) S → ∈	S →)S(S → ∈	S → ∈

Devise a new table so that you can parse ‘)) ((’. Justify your answer.

4. Consider the grammar: A → Aa/B; B → b. A faulty Recursive Descent Parser implementation is given below where match() is a single character reader.

```
A()
{
        if(true)
        {
                A();
                match('a');
        }
        else
                B();
}
```

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```
B()
{
        match('b');
}
```

Find out 3 major bottlenecks in this implementation with solution, and then write a pseudo code for the correct Recursive Descent Parser.

5. How would you change the following ambiguous grammar:

E → E + E | E - E | E * E | E / E | id

so that all of the binary operations are **RIGHT** associative and the precedence of the operators is (highest to lowest): (+ > * > / > -)?