Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Mid Examination, Spring 2025
Course Code: CSE331, Course Title: Compiler Design
Level: 4 Term: 1 Batch: 61

Time: 01:30 Hrs **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	***a)***	**S → D M Y** **D → NN** **M → july** **Y → NNNN** **N → 3 | 6 | 2 | 0 | 4** For the input string: `"36 july 2024"`, **determine** whether the CFG is ambiguous or not.	**[5]**	**CO1**

2.	***a)***	flaot `Calc (float a, float b float c, int x){`
		`flaot ans, char ch=c;`
		`ans = a*x+b*x+c ·/* this is second statement*/`
		`retunr ans;`
		`}`
		Describe the phases of a compiler for the second statement of the given function.
			[5]	**CO1**

	b)	**Find** the errors in the above code 2(a) and **explain** how panic mode method can recover from the errors.	**[5]**	
3.	***a)***	A smart travel management system is being developed to track the journeys of three travelers: A, B, and C, as they travel towards Cox's Bazar. The system will use a Finite State Machine (FSM) to model their movement through various locations. Travel Routes & Constraints Traveler A starts from Dhaka and follows this route: • Dhaka → P → Q → R → Cox's Bazar Traveler B also starts from Dhaka but takes a different route: • Dhaka → M → N → Q → R → Cox's Bazar Traveler C starts from Feni and follows this route: • Feni → R → N → Cox's Bazar → Teknaf **Design** an FSM diagram that accurately models these travel paths.	**[5]**	**CO1**
	b)	If the 3(a) FSM is an **NFA, convert** it into a **DFA**.	**[5]**	