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)	$S \rightarrow D\ M\ Y$ $D \rightarrow NN$ $M \rightarrow july$ $Y \rightarrow NNNN$ $N \rightarrow 3\ \|\ 6\ \|\ 2\ \|\ 0\ \|\ 4$ 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 $\rightarrow$ P $\rightarrow$ Q $\rightarrow$ R $\rightarrow$ Cox's Bazar Traveler B also starts from Dhaka but takes a different route: 📍 Dhaka $\rightarrow$ M $\rightarrow$ N $\rightarrow$ Q $\rightarrow$ R $\rightarrow$ Cox's Bazar Traveler C starts from Feni and follows this route: 📍 Feni $\rightarrow$ R $\rightarrow$ N $\rightarrow$ Cox's Bazar $\rightarrow$ 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]	

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