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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Mid Examination, Fall 2025

Course Code: CSE331, Course Title: Compiler Design

Level: 3 Term: 2 Batch: 63

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.		**S → NP VP** **NP → Det N | NP PP** **VP → V NP | V NP PP** **PP → P NP** **Det → the | a** **N → man | telescope** **V → saw** **P → with** For the input sting: **"I saw the man with a telescope", justify** whether the CFG is ambiguous or not.	[5]	**CO1**

2.		`#includ<studio.h>`
		`int main() {`
		`  in a=5, b=10, c=15, d=20;`
		`  result = a*10% + b*25% + c*25/100 +d*40/100; // target statement`
		`  printf("Result: %f" result);`
		`  return 0`
		`}`
				CO1

	a)	**Describe** the phases of a compiler for the **target statement** of the given function.	[6]	
	b)	**Find** the type of errors in the above code and **explain** how panic mode method can recover from the errors.	[4]	
3.	*a)*	Three students from **Daffodil International University** are traveling home for vacation by airplane. Their **smartwatches** track their movements through various locations on the way to the airport. The travel routes are described below: **Student 1:** Started from the University Campus (UC), walked to the Akran Bazar (AB), then took an auto-rickshaw to Birulia Bazar (BB), then a rickshaw to Metro Station (MS), passed through Kuril (KL) and reached the Airport (AP) by bus. **Student 2:** Left University Campus (UC), took a pathao ride to Ashulia (AL), proceeded to Uttara (UT), then a rickshaw to Metro Station (MS), passed through the Kuril (KL) area and reached the Airport (AP) using a leguna service. **Student 3:** Started from the University Campus (UC), took a cab to Kuril (KL) to meet a friend, then a rickshaw to Khilket (KK) area and finally went to the Airport (AP) and then took a flight to Rangpur (RP). Design an **FSM** that models the travel paths of all three students.	[5]	**CO1**
	b)	If the 3(a) FSM is an **NFA**, **convert** it into a **DFA**.	[5]	