



Daffodil International University
Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Summer 2026
Course Code: CSE313, Course Title: Compiler Design
Level: 3 Term: 1 Batch: 67

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)	Consider the following CFG: S → Actor Act Act → Event Act Connector Act Act Connector Act Connector Act Actor → hero Event → runs jumps hides Connector → then Explain whether the grammar is ambiguous or not for the below input string: hero runs then jumps then hides	[5]	CO1																		
2.	a)	intt processData(float velocity, float acceleration, float len, float time) { float 2result; result = velocity + 4 * len - time * velocity + len - acceleration * time // target return result + k; } Illustrate the phases of a compiler for the target of the given function.	[6]	CO1																		
	b)	Classify the errors in the above code 2(a), and explain how panic-mode error recovery would handle the errors in this program.	[4]																			
3.	a)	Consider an FSM with the following transition table: <table border="1"><thead><tr><th>State</th><th>$\delta(q,a)$</th><th>$\delta(q,b)$</th></tr></thead><tbody><tr><td>→ q0</td><td>{q0, q1}</td><td>{q0, q2}</td></tr><tr><td>q1</td><td>{q3}</td><td>{q1, q4}</td></tr><tr><td>q2</td><td>{q2}</td><td>{q3}</td></tr><tr><td>q3</td><td>{q4}</td><td>{q3}</td></tr><tr><td>*q4</td><td>{q4}</td><td>{q2, q4}</td></tr></tbody></table> Construct the FSM for the given transition table and identify the tuples from the FSM.	State	$\delta(q,a)$	$\delta(q,b)$	→ q0	{q0, q1}	{q0, q2}	q1	{q3}	{q1, q4}	q2	{q2}	{q3}	q3	{q4}	{q3}	*q4	{q4}	{q2, q4}	[4]	CO2
	State	$\delta(q,a)$	$\delta(q,b)$																			
→ q0	{q0, q1}	{q0, q2}																				
q1	{q3}	{q1, q4}																				
q2	{q2}	{q3}																				
q3	{q4}	{q3}																				
*q4	{q4}	{q2, q4}																				
b)	If the FSM is an NFA, convert it into a DFA and write a regular expression that describes the language accepted by the resulting DFA.	[6]																				