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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Final Examination, Fall 2024
Course Code: CSE331, Course Title: Compiler Design
Level: 4 Term: 1 Batch: 60

Time: 01:30 Hrs **Marks: 40**

Answer ALL Questions

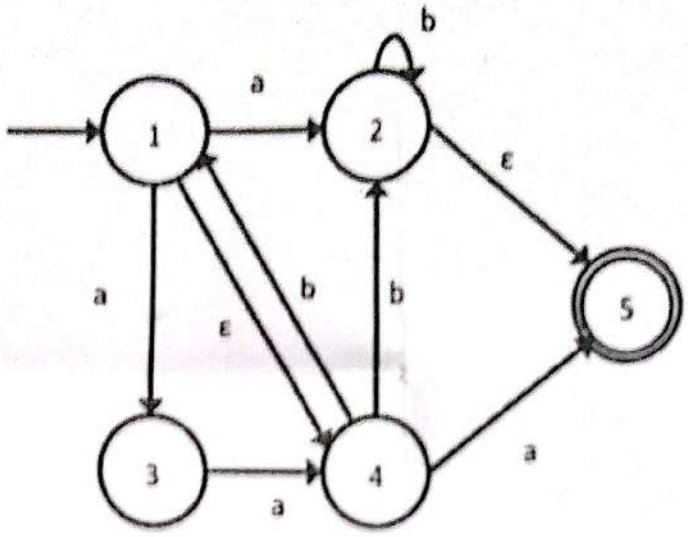
[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	Considering the following expression show the task for each phase (up to Semantic Analysis) of compiler: ***increment = gross * rate + 40***	**[5]**	

	b)	**Identify** the specific error from the following code:
		*#include<stdio.h>
		int main{
		innt a[2]={2,4,6}, b=1;
		sum = a[b]+b
		prntf("Rasalt is: %f, sum);
		return b;
		}*
			[3]	

	c)	**Explain** how the panic mode recovery would handle the syntax error *1(b)*.	**[2]**	
2.	*a)*	Consider the following CFG-1 and answer the following question. **P → ABCD** **A → aA | cC | oD | iC** **B → ov | ovC** **C → id | id-D | ε** **D → 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9** **CFG-1** i. Show the left most and right most derivation for the string **"covid-19"**. ii. **Explain** how an ambiguous grammar can be determined? Show if the above mentioned grammar is ambiguous or not.	**[5]**	**CO1**
	b)	Consider the following grammar. If there is Left Recursion then eliminate it. $A \rightarrow Ba \mid c$ $B \rightarrow Cb \mid Ad$ $C \rightarrow Ae \mid f$	**[3]**	

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3.	*a)*	Convert the following NFA in Fig.1 into a DFA using subset construction method.  Fig. 1. NFA for Q3(a)	[5]	
	b)	**Write down** the formal definition of Finite Automata? Justify the statement briefly – "**Every DFA is a NFA, but not the vice versa**".	[2]	

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