


# National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Compiler Construction	Course Code:	
	Degree Program:	BS (CS)	Semester:	Spring 2020
	Exam Duration:	60 Minutes	Total Marks:	30
	Paper Date:	Feb 2020	Weight	
	Section:	ALL	Page(s):	3
	Exam Type:	Mid-1		

**Student : Name:** \_\_\_\_\_ **Roll No.** \_\_\_\_\_

**Section:** \_\_\_\_\_

**Instruction/** Attempt all questions. Programmable calculators are not allowed.

**Notes:**

## Question 1 (5+5 marks)

a) Answer the following multiple choice questions:

<p>1. A regular definition cannot contain</p> <ul style="list-style-type: none"> <li>a) Terminals</li> <li>b) Non-terminals</li> <li>c) Recursion</li> <li>d) Substitution rules (productions)</li> <li>e) Kleene star operator</li> </ul> <p>2. Which of the following language processor provides code protection:</p> <ul style="list-style-type: none"> <li>a) Compiler</li> <li>b) Interpreter</li> <li>c) Hybrid system</li> <li>d) Both compiler and hybrid</li> <li>e) Both interpreter and hybrid</li> </ul> <p>3. A symbol table contains information about</p> <ul style="list-style-type: none"> <li>a) Variables</li> <li>b) Functions</li> <li>c) Data types</li> <li>d) Identifiers</li> <li>e) Addresses</li> </ul>	<p>4. Which of the following language processor provides platform independence (portability):</p> <ul style="list-style-type: none"> <li>a) Compiler</li> <li>b) Interpreter</li> <li>c) Hybrid system</li> <li>d) Both compiler and hybrid</li> <li>e) Both interpreter and hybrid</li> </ul> <p>5. Which of the following language processor uses both a compiler and an interpreter:</p> <ul style="list-style-type: none"> <li>f) Compiler</li> <li>g) Interpreter</li> <li>h) Hybrid system</li> <li>i) Both compiler and hybrid</li> <li>j) Both interpreter and hybrid</li> </ul>
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b) Match the entries in the first column with the corresponding description in the second:

<ul style="list-style-type: none"> <li>a) Optimization</li> <li>b) Parser</li> <li>c) Semantic analyzer</li> <li>d) Short-circuit evaluation</li> </ul>	<ul style="list-style-type: none"> <li>i. Convert words into sentences</li> <li>ii. Type checking</li> <li>iii. Partial evaluation of boolean expression</li> <li>iv. Execute program</li> </ul>
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e) Interpreter	v. Use less time and space
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**Question 2 (5+5 marks)**

a) Give a regular definition for a date. Following are few examples: 29-Feb-2020, 31-Mar-1982, 15-Dec-2010.

b) Give a DFA for odd-even language i.e. odd number of a's and even number of b's.

**Question 3 (5+5 marks)**

a) Give a CFG for the language:  $\{a^n b^n \mid n \geq 0\}$ .

b) Set precedence of the equality and inequality greater than the other two operators:

$E \rightarrow E < E \mid E > E \mid E == E \mid E != E \mid \text{num}$