

www.FirstRanker.com

Enrolment.FirstRanker.com

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018						
Subject	:20/11/2018					
Subject Code:2150708Date:20/11/2018Subject Name:System Programming						
Time: 10:30 AM TO 01:00 PM Total I						
Instructio	ns:					
		empt all questions.				
		ke suitable assumptions wherever necessary. ures to the right indicate full marks.				
5.	Tig	ares to the right indicate full marks.	MARKS			
Q.1	(a)	Remove left recursion from following grammar	03			
<b>X</b>	()	$A \rightarrow Ac \mid Aad \mid bd \mid \varepsilon$				
	(b)	Consider a grammar $S \rightarrow aa \mid aSa$ , How a top down backtracking parser can generate six occurrences of a?	g <b>04</b>			
	(c)	Construct an LL(1) parsing table for the following grammar.	07			
		$S \rightarrow aBDh$				
		$B \rightarrow cC$				
		$C \to bC \mid \varepsilon$ $D \to EF$				
		$E \rightarrow g \mid \varepsilon$				
		$F \rightarrow f   \varepsilon$				
Q.2	<b>(a)</b>	If the string a9b had been identified as identifier, but if in the				
		further use 9ab is written, which phase of compiler would	1			
	<b>(b</b> )	identify as an error? How?	0.4			
	(b)	How a lexical analyzer recognizes unsigned numbers such as 12,12.3,12.3E4?	04			
			~			
	(c)	Consider the assembly program fragment START 200	07			
		READ A				
		LOOP MOVER AREG,A				
		SUB AREG,='1'				
		BC GT,LOOP				
		STOP A DS 1				
		What will be the intermediate code for the above program	1			
		fragment? What does START directive do? What will be the				
		difference if ORIGIN directive is used in place of START?				
		OR				
	(c)	Consider the assembly program fragment,	07			
		MOVER CREG, B ADD CREG, ='1'				
		BC ANY,NEXT				
		LTORG				
		='5'				
		='1'				
		SUB AREG,='1' END				
		='1'				
		(i) Explain LTORG directive.				



rstranker's choice       Explain the explicit Ramker endow opcodes where stress the endow of the endow opcode fragement.       (iii)       How table of literals will be manipulated?       03         Q.3 (a)       Which peof gap makes the software buggy or unreliable?       03         (b)       How the use of programming language can help in making the software reliable?       04         (c)       Write Macro definition with following and explain.       07         (i)       Macro with REPT statment       03         (ii)       Macro with REPT statment       03         (iii)       Macro with grammar for expressions       03         (c)       Write a macro definition for adding two numbers 10 times. Use nested macro call to increment numbers by 1 every time in 10 iterations.       04         (c)       Consider the following grammar for expressions       07         (c)       Consider the following is a popular intermediate code in non optimizing compilers"       04         (b)       Which are the methods used for identifying free memory area?       04         (c)       Define program relocation. How address is corrected in address sensitive instructions in case of program relocation.       07         (c)       Define program?       04       04         (c)       Define program relocation. How address is corrected in address sensitive instructons in case of program relocation.       <	IISU	nd	liker.com	
Q.3(a) Which type of gap makes the software buggy or unreliable? Which methods can be used to overcome this situation?03(b) How the use of programming language can help in making the software reliable?04(c) Write Macro definition with following and explain. (i) Macro with REPT statment OR07Q.3(a) Write Macro definition for adding two numbers that uses positional and keyword parameters.03(b) Write a macro definition for adding two numbers that uses positional and keyword parameters.04(c) Consider the following grammar for expressions $E \rightarrow EAE   [E]   E   id$ $A \rightarrow +   -   *   /   ^{A}$ where ^ represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed?03Q.4(a) Justify "Postfix string is a popular intermediate code in non optimizing compilers" (b) Which are the methods used for identifying free memory area? (c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation. OR03Q.4(a) A program computes i*5 for 10 times. What type of optimization can be applied? (b) What is the structure of LEX program? (c) Explain common sub expression elimination using value numbers.03Q.5(a) What is ambiguity in grammatic specification? (b) Describe the facilities for dynamic debugging. (c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.03Q.5(a) Describe three components of the interpreter. Draw control flow graph. Perform control flow analysis.03(b) Define linking. How external reference is resolved in linking? (c) What is memor	rstrank	(er's	chpice Explain the first Ramker com opcodes table. First Ra above code fragement.	nker.com
Which methods can be used to overcome this situation?(b)How the use of programming language can help in making the software reliable?(c)(c)Write Macro definition with following and explain.07(i)Macro using expansion time loop07(ii)Macro using expansion time loop07(iii)Macro using expansion time loop08Q.3(a)Write Macro definition for adding two numbers that uses positional and keyword parameters.03(b)Write a macro definition for adding two numbers 10 times. Use nested macro call to increment numbers by 1 every time in 10 iterations.04(c)Consider the following grammar for expressions $E \rightarrow EAE   (E)   -E   id$ 07 $A \rightarrow +   -  *  /   $ where ^ represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed?03Q.4(a)Justify "Postfix string is a popular intermediate code in non optimizing compilers"03(b)Which are the methods used for identifying free memory area?04(c)Define program relocation. How address is corrected in address sensitive instructions in case of program?03(c)Explain common sub expression elimination using value numbers.07(d)(e)Explain common sub expression elimination using value numbers.07(e)Explain common sub expression elimination using value numbers.04(c)Describe the facilities for dynamic debugging.04(c)What is ambiguity in grammatic specification?03(b)Describe three components of the interpreter. <th></th> <th></th> <th></th> <th></th>				
software reliable? (c) Write Macro definition with following and explain. (i) Macro using expansion time loop (ii) Macro with REPT statment OR Q.3 (a) Write Macro definition for adding two numbers that uses positional and keyword parameters. (b) Write a macro definition for adding two numbers 10 times. Use nested macro call to increment numbers by 1 every time in 10 iterations. (c) Consider the following grammar for expressions $E \rightarrow EAE   (E)   -E   id$ $A \rightarrow +   -  *   /   A$ where ^ represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed? (d) Justify "Postfix string is a popular intermediate code in non optimizing compilers" (b) Which are the methods used for identifying free memory area? (c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation. <b>OR</b> Q.4 (a) A program computes i*5 for 10 times. What type of optimization can be applied? (b) What is the structure of LEX program? (c) Explain common sub expression elimination using value numbers. Q.5 (a) What is ambiguity in grammatic specification? (b) Describe the facilities for dynamic debugging. (c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis. <b>OR</b> Q.5 (a) Describe three components of the interpreter. (b) Define linking. How external reference is resolved in linking? (c) What is memory binding? Explain dynamic memory allocation (c) What is memory binding? Explain dynamic memory allocation (c) What is memory binding? Explain dynamic memory allocation (d) The second provide is the structure of the part of the interpreter. (d) Soft is memory binding? Explain dynamic memory allocation (d) The second provide is the structure of the part of the therefore the part o	Q.3	(a)		03
(i)Macro using expansion time loop (ii)Macro with REPT statment ORQ.3(a)Write Macro definition for adding two numbers that uses positional and keyword parameters.03(b)Write a macro definition for adding two numbers 10 times. Use nested macro call to increment numbers by 1 every time in 10 iterations.04(c)Consider the following grammar for expressions $E \rightarrow EAE   (E)   -E   id$ $A \rightarrow +   -   *   /  ^A where ^ represents exponent. Generate operatorprecedence relation matrix and show how id * id ^ id will beparsed?03Q.4(a)Justify "Postfix string is a popular intermediate code in nonoptimizing compilers"03(b)Which are the methods used for identifying free memory area?(c)04Q.4(a)A program computes i*5 for 10 times. What type of optimizationcan be applied?03(b)What is the structure of LEX program?numbers.04(c)Explain common sub expression elimination using valuenumbers.03Q.5(a)What is ambiguity in grammatic specification?OR03(b)Describe the facilities for dynamic debugging.(c)04(c)Write a code fragment to find out whether number is odd or even.Draw control flow graph. Perform control flow analysis.OR03Q.5(a)Describe three components of the interpreter.(b)03(b)Define linking. How external reference is resolved in linking?(c)04$		<b>(b)</b>		04
Q.3(a) Write Macro definition for adding two numbers that uses positional and keyword parameters.03(b) Write a macro definition for adding two numbers 10 times. Use nested macro call to increment numbers by 1 every time in 10 iterations.04(c) Consider the following grammar for expressions $E \rightarrow EAE  (E)  -E   id$ $A \rightarrow +  - * / ^{a}$ where ^ represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed?07(d) Justify "Postfix string is a popular intermediate code in non optimizing compilers"03(b) Which are the methods used for identifying free memory area? (c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation. OR03Q.4(a) A program computes i*5 for 10 times. What type of optimization can be applied? (b) What is the structure of LEX program? (c) Explain common sub expression elimination using value numbers.03Q.5(a) What is ambiguity in grammatic specification? Draw control flow graph. Perform control flow analysis.03Q.5(a) Describe three components of the interpreter. Draw control flow graph. Perform control flow analysis.03(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.04(c) Write a code fragment to find out whether number is resolved in linking? (c) What is memory binding? Explain dynamic memory allocation03(d) Of OFOF03(e) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.04		(c)	<ul><li>(i) Macro using expansion time loop</li><li>(ii) Macro with REPT statment</li></ul>	07
nested macro call to increment numbers by 1 every time in 10 iterations.(c)Consider the following grammar for expressions07 $E \rightarrow EAE   (E)   -E   id$ $A \rightarrow +   -  *  /  ^{A}$ where ^ represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed?03Q.4(a)Justify "Postfix string is a popular intermediate code in non optimizing compilers"03(b)Which are the methods used for identifying free memory area?04(c)Define program relocation. How address is corrected in address sensitive instructions in case of program relocation.03Q.4(a)A program computes i*5 for 10 times. What type of optimization can be applied?04(c)Explain common sub expression elimination using value numbers.03Q.5(a)What is ambiguity in grammatic specification? Draw control flow graph. Perform control flow analysis.03Q.5(a)Describe three components of the interpreter. OR03Q.5(a)Describe three components of the interpreter. OR03(c)What is memory binding? Explain dynamic memory allocation03	Q.3	(a)	Write Macro definition for adding two numbers that uses	03
$E \rightarrow EAE   (E)   -E   id$ $A \rightarrow +   -  *   / ^{A} \text{ where }^{A}  represents exponent. Generate operator precedence relation matrix and show how id * id ^ id will be parsed? Q.4 (a) Justify "Postfix string is a popular intermediate code in non optimizing compilers" (b) Which are the methods used for identifying free memory area? (c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation. OR Q.4 (a) A program computes i*5 for 10 times. What type of optimization can be applied? (b) What is the structure of LEX program? (c) Explain common sub expression elimination using value numbers. Q.5 (a) What is ambiguity in grammatic specification? (b) Describe the facilities for dynamic debugging. (c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis. OR Q.5 (a) Describe three components of the interpreter. (b) Define linking. How external reference is resolved in linking? (c) What is memory binding? Explain dynamic memory allocation (d) Define linking. How external reference is resolved in linking? (c) What is memory binding? Explain dynamic memory allocation (d) Define linking. How external reference is resolved in linking?$		(b)	nested macro call to increment numbers by 1 every time in 10	04
<ul> <li>optimizing compilers"</li> <li>(b) Which are the methods used for identifying free memory area?</li> <li>(c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation.</li> <li>OR</li> <li>Q.4 (a) A program computes i*5 for 10 times. What type of optimization can be applied?</li> <li>(b) What is the structure of LEX program?</li> <li>(c) Explain common sub expression elimination using value numbers.</li> <li>Q.5 (a) What is ambiguity in grammatic specification?</li> <li>(b) Describe the facilities for dynamic debugging.</li> <li>(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.</li> <li>OR</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> </ul>		(c)	$E \rightarrow EAE \mid (E) \mid -E \mid id$ $A \rightarrow + \mid - \mid * \mid / \mid ^{\text{where } ^{\text{represents exponent. Generate operator}}$ precedence relation matrix and show how id * id ^ id will be	07
<ul> <li>(c) Define program relocation. How address is corrected in address sensitive instructions in case of program relocation. OR</li> <li>Q.4 (a) A program computes i*5 for 10 times. What type of optimization can be applied?</li> <li>(b) What is the structure of LEX program?</li> <li>(c) Explain common sub expression elimination using value numbers.</li> <li>Q.5 (a) What is ambiguity in grammatic specification?</li> <li>(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> </ul>	Q.4	(a)		03
<ul> <li>sensitive instructions in case of program relocation. OR</li> <li>Q.4 (a) A program computes i*5 for 10 times. What type of optimization of can be applied?</li> <li>(b) What is the structure of LEX program?</li> <li>(c) Explain common sub expression elimination using value of numbers.</li> <li>Q.5 (a) What is ambiguity in grammatic specification?</li> <li>(c) Write a code fragment to find out whether number is odd or even. of Draw control flow graph. Perform control flow analysis.</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> </ul>		<b>(b</b> )	••••	-
<ul> <li>can be applied?</li> <li>(b) What is the structure of LEX program?</li> <li>(c) Explain common sub expression elimination using value 07 numbers.</li> <li>Q.5 (a) What is ambiguity in grammatic specification?</li> <li>(b) Describe the facilities for dynamic debugging.</li> <li>(c) Write a code fragment to find out whether number is odd or even. 07 Draw control flow graph. Perform control flow analysis.</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> </ul>		(c)	sensitive instructions in case of program relocation.	07
<ul> <li>(c) Explain common sub expression elimination using value numbers.</li> <li>Q.5 (a) What is ambiguity in grammatic specification?</li> <li>(b) Describe the facilities for dynamic debugging.</li> <li>(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> </ul>	Q.4	(a)	can be applied?	03
numbers.03Q.5(a) What is ambiguity in grammatic specification?03(b) Describe the facilities for dynamic debugging.04(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.07OR08Q.5(a) Describe three components of the interpreter.03(b) Define linking. How external reference is resolved in linking?04(c) What is memory binding? Explain dynamic memory allocation07		<b>(b</b> )	What is the structure of LEX program?	04
<ul> <li>(b) Describe the facilities for dynamic debugging.</li> <li>(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.</li> <li>OR</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> <li>(d) 04</li> </ul>		(c)	numbers.	07
<ul> <li>(c) Write a code fragment to find out whether number is odd or even. Draw control flow graph. Perform control flow analysis.</li> <li>OR</li> <li>Q.5 (a) Describe three components of the interpreter.</li> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> <li>(d) OT</li> </ul>	Q.5	<b>(a)</b>		
Draw control flow graph. Perform control flow analysis.ORQ.5(a)Describe three components of the interpreter.03(b)Define linking. How external reference is resolved in linking?04(c)What is memory binding? Explain dynamic memory allocation07		<b>(b</b> )		
<ul> <li>(b) Define linking. How external reference is resolved in linking?</li> <li>(c) What is memory binding? Explain dynamic memory allocation</li> <li>07</li> </ul>		(c)	Draw control flow graph. Perform control flow analysis.	07
(c) What is memory binding? Explain dynamic memory allocation 07	Q.5	<b>(a)</b>		
			• •	
		(c)		07

\*\*\*\*\*