M S Ramaiah Institute of Technology

Department of Information Science and Engineering

Term:	22/01/2018 to 12/05/2018	Course Code:	IS631
Course:	System Software	Semester:	6
CIE:	Test III	Max Marks:	30
Date:	05/05/2018	Time:	9 :30 –10:30 AM

Portions for Test: Lecture Nos. from 34 to 56 as per lesson plan

Instructions to Candidates: Answer any **Two** out of Three questions.

SI No	Questions	Marks	BL	CO

1a.	The following is the macro definition of RDBUFF macro. Expand the macro call RDBUFF BUFFER, LENGTH, F1 followed by the call RDBUFF BUFR, LEN, F2.
	
	``
	RDBUFF MACRO &BUFADR,&RECLTH,&INDEV
	            CLEAR X
	            +LDT #4096
	$LOOP RDCHAR &INDEV
	            COMPR A,S
	            JEQ $EXIT
	            STCH &BUFADR,X
	            TIXR T
	            JLT $LOOP
	$EXIT STX &RECLTH
	            MEND
	RDCHAR MACRO &IN
	            TD =X'&IN'
	            JEQ *-3
	            RD =X'&IN'
	            MEND
	``
		5	Ap	4

1b.	Give examples and explain the role the following characters used in regular expressions. i. ? ii. "xy" iii. () iv. { } v. \	5	U	5
1c.	Write a YACC program to identify strings in the form $1^m 0^n$ where m and n >=0.	5	Ap	5

2a.	Given the following macro definition
	``
	RDB MACRO &INDEV=F1, &EOR = , &MAX = 4096
	     IF (&EOR NE '')
	&EORCK SET 1
	     ENDIF
	     CLEAR X
	     CLEAR A
	     IF (&EORCK EQ 1)
	     LDCH =X'&EOR'
	     ENDIF
	     +LDT #&MAX
	$LOOP TD =X'&INDEV'
	``
		5	Ap	4

	JEQ $LOOP MEND Indicate the macro expansion performed for the macro invocation 1. RDB EOR=04 followed by 2. RDB INDEV=F3,MAX=2048			
2b.	Write a LEX Program to count the number of vowels and consonants in a given string.	5	Ap	5
2c.	For the given grammar indicate the working of shift reduce parsing and generate parse tree for the input **v = 12 / 4 * (9 – 5)**. **Stmt** is the start symbol. Name and Number are tokens or terminal symbols. Stmt: Name '=' expr; expr : Number 	expr '+' Number 	expr '-' Number 	expr '*' Number 	expr '/' Number 	'(' expr ')' ;	5	Ap	5

3a.	Describe the following features of a macroprocessor.
	    i) Generation of unique labels
	    ii) Keyword macro parameters
		5	U	4

3b.	Write a Lex program to read Roman numerals and print the decimal version of the same.	5	Ap	5
3c.	Write a YACC program to implement a basic calculator.	5	Ap	5