**Mobile phones are banned**

**M S Ramaiah Institute of Technology**

**Department of Information Science and Engineering**

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| **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.

PTO

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| **Sl 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 1m0n 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’  JEQ $LOOP  MEND  Indicate the macro expansion performed for the macro invocation  1. RDB EOR=04 followed by  2. RDB INDEV=F3,MAX=2048 | **5** | **Ap** | **4** |
| **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.   1. Generation of unique labels 2. 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** |