10CS52

Fifth Semester B.E. Degree Examination, Dec.2014/Jan.2015

System Software

Time: 3 hrs. Max. Marks: 100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART - A

- a. Distinguish between system software and application software.

 b. Explain SIC/XE architecture.

 c. Write a SIC/XE program to copy array A of 100 words to array B of same size.

 (04 Marks)

 (06 Marks)
 - d. What is upward compatible? How is it ensured between SIC and SIC/XE? (04 Marks)
- 2 a. Explain briefly the SIC assembler directives with examples. (06 Marks)
 - b. What is relocation? Illustrate how a modification record is used in relocation of program.
 (04 Marks)
 - c. Generate the machine codes for the following SICXE program.

START COPY 1000 CLOOP +JSUB RDRFC LFNCTH LDA COMP ZERO JEQ EXIT CLOOP STA BUFFER EXIT THREE TOTAL LENGTH TA. RSUB RESW BUFFER 100 **EOF** BYTE C 'EOF'

BUFFER RESW 100
EOF BYTE C 'EOF'
ZERO WORD 0
THREE WORD 3
LENGTH RESW 1
TOTAL_LENGTH RESW 1
RDREC LDX ZERO

MNEMONICS:

JSUB = A0, LDA = 80, LDX = 60, STA = 50, COMP = 90, RSUB = 4C, JEQ = B0, J = B8

(10 Marks)

- 3 a. What is a literal? Differentiate literals from immediate data. (04 Marks)
 - b. Explain the following machine independent features of SIC assembler:
 - i) Symbol defining statements

ii) Control sections (08 Marks)
c. Explain the two design options of one-pass assembler. (08 Marks)

- a. Write the algorithm of absolute loader. (04 Marks)
 b. Write the algorithm of linking loader. (10 Marks)
 - Explain briefly the design options of loaders. (06 Marks)

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PART-B List the basic tasks of a text editor.

With a neat diagram, explain the text editor structure.

List the user interfaces for editors with an example for each.

What are the debugging functions and capabilities?

(06 Marks) (04 Marks)

(04 Marks)

(06 Marks)

Give the features of MACROPROCESSORS and explain the data structures used in macro processors. (08 Marks)

b Explain the general purpose macroprocessors design option.

(04 Marks)

For the following macro definition, expand the macro call statements called in sequence:

1, RDBUFF F1, BUFA, RLEN, 04, 1024

ii) RDBUFF F2, BUFB, RLNG, ,

RDBUFF MACRO &INDEV, &BUFADR, &RECLTH, &FOR, &MAXLTH

IF (&EOR NE ' ') &EORCK SET ENDIF CLEAR X CLFAR A (&EORCR EQ1) IF LDCh =X '&EOR' A, S RMO **ENDIF** (&MAXLTH EQ IF #4096 +LDT ELSE # &MAXLTH +LDT ENDIF \$LOOP =X &INDEV' TD JEQ. \$LOOP "WINDEV" RD.

STCH

TIXR

MENI

JLT STX

(08 Marks)

List any ten regular expression in lex. (10 Marks) Distinguish between LEXER and Handwritten lexer. (b4 Marks) Write lex program to compute word, character and line count in a given file. (06 Marks)

&BUFADR, X

LOOP

&RECLTH

Explain the format of yacc program.

Write lex-yacc program to validate simple arithmetic expression.

Explain briefly lex and yacc interaction.

d. Discuss conflicts in yacc.

(04 Marks)

(08 Marks) (04 Marks)

(04 Marks)

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