Fifth Semester B.E. Degree Examination, May/June 2010
Systems Software

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART - A

1   a. List out registers used in SIC machine architecture along with their use.   **(07 Marks)**
    b. Write a sequence of instructions for SIC/XE to set ALPHA equal to GAMMA* BEETA – 9. (Use register operation).   **(05 Marks)**
    c. Write a program in both SIC and SIC/XE to copy a character string 'System Software' to another character string.   **(08 Marks)**

2   a. Define the following with an example : i) Operation code table   ii) Symbol table.   **(06 Marks)**
    b. Generate the complete object program for the following assembly level program with the symbol table. Assume :   **(14 Marks)**

CLEAR = B4	LDT = 74	TD = EO	JEQ = 30
TIXR = B8	JLT = 38	RSUB = 4C	LDCH = 50
WD = DC	X = 1	T = 5	

WRREC	START	105D
	CLEAR	X
	LDT	LENGTH
WLOOP	TD	OUTPUT
	JEQ	WLOOP
	LDCH	BUFFER, X
	WD	OUTPUT
	TIXR	T
	JLT	WLOOP
	RSUB	
OUTPUT	BYTE	X '05'
BUFFER	RESB	400
LENGTH	RESB	2
	END	WRREC

3   a. Describe how the assembler handles literal operands.   **(06 Marks)**
    b. Give the format for DEFINE and REFER records.   **(06 Marks)**
    c. Explain load and go assembler, with an example.   **(08 Marks)**

4   a. With the help of an example, show how relocation and linking operations are performed.   **(12 Marks)**
    b. Enlist any four different loader option commands.   **(04 Marks)**
    c. Define the following : i) Linking loader   ii) Dynamic linking.   **(04 Marks)**

PART - B

5 a. List the important four tasks to be accomplished by a text editor for an interactive user computer dialogue. **(04 Marks)**

   b. Discuss three basic types of computing environments for editors. **(06 Marks)**

   c. Define tracing and trace back in debugging functions. **(04 Marks)**

   d. Write a note on the concept of user interface criteria in a text editor. **(06 Marks)**

6 a. Write an algorithm for one pass macro processor. **(10 Marks)**

   b. RDBUFF HACRO & INDEV , & BUFADR , & RECLTH , & EOR **(10 Marks)**

& EORCT	SET	% N ITEMS (& EOR)
	CLEAR	X
	CLEAR	A
	+ LDT	# 4096
$ LOOP	TD	= X '& INDEV'
	JEQ	$ LOOP
	RD	= X '& INDEV'
& CTR	SET	1
	WHILE	(& CTR LE & EORCT)
	COMP	= X '0000 & EOR [& CTR]'
	JEQ	$ EXIT
& CTR	SET	& CTR + 1
	END W	
	STCH	& BUFADR, X
	TIXR	T
	JLT	$ LOOP
$ EXIT	STX	& RECLTH
	MEND	

Expand the following macro invocation statements using the above given macro.

i) RDBUFF F1, BUFFER, Length, (04, 12)

ii) RDBUFF F1, BUFFER, Length

7 a. Write a note on ANSI C macro language. **(05 Marks)**

   b. Explain the following regular expressions with examples :

     i) [ ]   ii) { }   iii) /   iv) ( ) **(08 Marks)**

   c. Explain various sections of a LEX specification using a basic word count program by reading from a file. **(07 Marks)**

8 a. Define YACC tools. What are the two types of conflicts in YACC? Give examples. **(08 Marks)**

   b. Write YACC program to validate a simple arithmetic expression involving operators + , - , * , / . **(08 Marks)**

   c. Define and explain the use of YY wva p( ). **(04 Marks)**

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