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06CS52

**Fifth Semester B.E. Degree Examination, June 2012**  
**System Software**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain the instruction formats and addressing modes of SIC/XE machine. (10 Marks)
- b. Write a program in both SIC and SIC/ XE to copy a character string 'system software' to another string. (10 Marks)
  
- 2 a. Explain the five fundamental functions of an SIC assembler. (05 Marks)
- b. Explain the data structures used in assembler algorithms. (05 Marks)
- c. Generate the object code for each statement and write the object programs for the following SIC/XE program.  
(Given that : LDX = 04, LDA = 00, LDB = 68, ADD = 18, TIX = 2C, JLT = 38, STA = 0C, RESUB = 4C).

SUM	START	O
FIRST	LDX	# O
	LDA	# O
	+LDB	# TABLE 2
	BASE	TABLE 2
LOOP	ADD	TABLE, X
	ADD	TABLE2, X
	TIX	COUNT
	JLT	LOOP
	+STA	TOTAL
	RSUB	
COUNT	RESW	1
TABLE	RESW	2000
TABLE2	RESW	2000
TOTAL	RESW	1
	END	FIRST

(10 Marks)

- 3 a. List the machine independent features of assembler. Explain any two. (10 Marks)
- b. Explain the features of load-and-go assembler. (05 Marks)
- c. Compare MASM assembler with SIC assembler. (05 Marks)
  
- 4 a. Write the code for boot strap loader. Explain briefly. (05 Marks)
- b. Explain the data structures used in linking loaders. (05 Marks)
- c. State and explain the various loader design options. (10 Marks)

**PART – B**

- 5 a. Explain the four tasks involved in user–computer–dialogues of an editing system. (04 Marks)  
b. Explain the editor structure, with diagram. (08 Marks)  
c. Explain the debugging functions and capabilities of interactive debugging system. (08 Marks)
- 6 a. Explain the data structures involved in macroprocessor algorithms. (06 Marks)  
b. Write an algorithm for one–pass macroprocessor. (08 Marks)  
c. Explain the features of general purpose macroprocessors. (06 Marks)
- 7 a. Explain the three basic sections of a LEX program. (06 Marks)  
b. Write a LEX program to count number of words, characters and lines in a given file. (06 Marks)  
c. Explain the following regular expressions, with example :  
i) [ ]    ii) { }    iii) /    iv) ( ). (08 Marks)
- 8 a. Define YACC tools. What are two types of conflicts in YACC? Give examples. (10 Marks)  
b. Write a YACC program to validate a simple arithmetic expression involving operators +, −, \*, /. (10 Marks)

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