

# CRASH COURSE

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10CS52

## Fifth Semester B.E. Degree Examination, May 2017 System Software

Time: 3 hrs.

Max. Marks: 100

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

### PART – A

- 1 a. Explain the instruction formats and addressing modes of SIC/XE machine architecture. (10 Marks)  
b. Write sequence of instructions for SIC/XE to set ALPHA equal to  $4 * BETA - 9$ . Assume ALPHA and BETA are one-word variables (use register operation). (04 Marks)  
c. Write a program in both SIC and SIC/XE to copy a character string 'system software' to another character string. (06 Marks)

- 2 a. Explain five functions of SIC assembler with example. (05 Marks)  
b. What is program relocation? Explain the problem associated with it and its solution. (05 Marks)  
c. Generate the symbol table and write the object program for the following SIC program:

SUM	START	4000
FIRST	LDX	ZERO
	LDA	SERO
LOOP	ADD	TABLE, X
	TIX	COUNT
	JLT	LOOP
	STA	TOTAL
	RSUB	
TABLE	RESW	2000
COUNT	RESW	1
ZERO	WORD	0
TOTAL	RESW	1
	END	FIRST

[Given that LDX = 04, LDA = 00, ADD = 18, TIX = 2C, JLT = 38, STA = 0C, RSUB = 4C] (10 Marks)

- 3 a. What are literals? Explain how literals are handled by assembler. (04 Marks)  
b. What are control sections? Explain how program linking is done with control section. (08 Marks)  
c. Explain various assembler design options. (08 Marks)
- 4 a. Write and explain Boot strap loader for SIC/XE. (10 Marks)  
b. Explain the machine dependent loader features. (10 Marks)

**PART – B**

- 5 a. List the four tasks of interactive user-computer dialogue. (04 Marks)  
b. With neat diagram, explain typical editor structure. (08 Marks)  
c. Explain the different debugging functions and capabilities. (08 Marks)
- 6 a. Explain the data structures used in macroprocessor algorithm. (06 Marks)  
b. Explain the macroprocessor algorithm with all required procedures. (08 Marks)  
c. Write a note on ANSI C macroprocessor. (06 Marks)
- 7 a. Explain the format of LEX program. (06 Marks)  
b. What is regular expression? Explain all the characters that forms regular expression. (08 Marks)  
c. Write Lex program to count the number of characters, words, lines of given input file. (06 Marks)
- 8 a. What is YACC? Explain the different sections used in YACC specification. (10 Marks)  
b. Write a YACC program to validate simple arithmetic expression involving +, -, \*, /. (10 Marks)

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