



USN

--	--	--	--	--	--	--	--	--	--

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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.



**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)

\*\*\*\*\*