

Fifth Semester B.E. Degree Examination, June-July 2009
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. With reference to SIC/XE machine architecture explain
 - i) Instruction format
 - ii) Address modes
 - iii) Data formats
 - iv) Registers. (12 Marks)
- b. Write a program for SIC/XE to add 2 arrays each having 100 elements & each element 1 word in length and store the result back in memory. (05 Marks)
- c. With reference to SIC standard version explain instruction format. (03 Marks)
- 2 a. Write algorithm of pass 2 of 2 pass assembler. Also, explain briefly the data structures used and for what purpose they are used in pass-2 (14 Marks)
- b. Explain the need of relocation of a program. Explain how it is implemented. (06 Marks)
- 3 a. Explain absolute and relative expressions. How these are processed by an assembler? (06 Marks)
- b. What are control sections? How are they processed? (08 Marks)
- c. What is the difficulty encountered in implementing one pass assembler and how is it solved? (06 Marks)
- 4 a. What is dynamic binding? Explain the process of loading and calling of subroutine using dynamic binding. (10 Marks)
- b. What is relocating loader? Explain two methods for specifying relocation as a part of object program. (10 Marks)

PART – B

- 5 a. Explain briefly structure of a typical editor with the help of suitable block diagram. (12 Marks)
- b. Explain different debugging functions and capabilities. (08 Marks)
- 6 a. List the different tables used for a macro processor. Explain their functions. (06 Marks)
- b. Discuss the points to be taken care while designing a general purpose macro processor. (08 Marks)
- c. Explain conditional macro expansions. (06 Marks)
- 7 a. What is a regular expression? Explain any 8 characteristics that form a regular expression. (10 Marks)
- b. Explain the structure of a lex program. (06 Marks)
- c. Write a lex program to handle numbers, strings, commands and new drives. (04 Marks)
- 8 a. Write a yacc program to evaluate the arithmetic expressions. Consider all possible cases. (08 Marks)
- b. Write short notes on
 - i) Macro processor within language translator.
 - ii) Variables & typed tokens.
 - iii) Unique label generation within macros. (12 Marks)
