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Fifth Semester B.E. Degree Examination, December 2011
Systems 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. What is system software? Compare system software with application software and give couple of examples. (04 Marks)
- b. Explain the instruction formats and addressing modes of SIC/XE machine architecture. (10 Marks)
- c. Suppose the ALPHA is an array of 100 words. Write a sequence of instructions for SIC/XE to set all 100 elements of the array to ZERO. Use immediate addressing and register to register addressing to make the process as efficient as possible. (06 Marks)
- 2 a. What are the fundamental functions that any assembler must perform? With a suitable example, explain any six assembler directives. (10 Marks)
- b. Write an algorithm for PASS-1 of two pass assembler and explain with an example. (10 Marks)
- 3 a. What is literal? What are differences between literal and immediate operand. (04 Marks)
- b. What are program blocks? With a suitable example, explain how program blocks are handled by an assembler. (06 Marks)
- c. Give the format of the following records necessary to obtain object code :
i) Define record ii) Refer record iii) Modification record (revised) (10 Marks)
- 4 a. What is loader? What are the basic functions the loader has to perform? (04 Marks)
- b. What is relocation? Explain the methods for specifying relocation as a part of object program. (08 Marks)
- c. Explain the working of linkage editor and linking loader. (08 Marks)

PART - B

- 5 a. Explain the different tasks to be accomplished by a text editor for an interactive user computer dialogue. (10 Marks)
- b. With a neat diagram, explain the working of a typical editor structure. (10 Marks)
- 6 a. What is MACRO? Briefly discuss various data structures required for a design of MACRO PROCESSOR. (08 Marks)
- b. With regard to machine independent macroprocessor feature, explain the followings :
i) Concatenation of MACRO parameters ii) Generation of unique labels
iii) Conditional MACRO expansion iv) Keyword macro parameters. (12 Marks)
- 7 a. Discuss the characters that used in the meta language as part of standard ASCII character set used in UNIX operating system. (08 Marks)
- b. What is LEX? Explain the LEX specification format. (06 Marks)
- c. Write a LEX program to identify the decimal number. (06 Marks)
- 8 a. What is YACC? Explain the different sections used in writing the YACC specification. (10 Marks)
- b. Write a YACC program to function as a calculator which performs addition, subtraction multiplication, division and unary operations. (10 Marks)

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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.