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10CS52

### Fifth Semester B.E. Degree Examination, Dec.2015/Jan.2016 System Software

Time: 3 hrs.

Max. Marks:100

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

#### PART - A

- 1 a. Differentiate between system software and application software. (04 Marks)
- b. Explain the instruction formats and addressing modes of SIC/XE machine architecture. (10 Marks)
- c. Write an ALP in SIC/XE to add two arrays of 100 words. (06 Marks)
- 2 a. Explain the different data structures used in designing SIC assembler. (04 Marks)
- b. Discuss pass 2 algorithm of two pass assembler. (10 Marks)
- c. What is program relocation? Explain the problems associated with it and their solutions. (06 Marks)
- 3 a. Explain load and go assembler with an example. (10 Marks)
- b. Explain multipass assembler. (06 Marks)
- c. Give the format for define and refer records. (04 Marks)
- 4 a. What is a loader? Develop an algorithm for a bootstrap loader. (10 Marks)
- b. What is dynamic loading? What are its advantages and disadvantages? Explain with a neat diagram loading and calling of a subroutine using dynamic linking. (10 Marks)

#### PART - B

- 5 a. With a neat diagram, explain the structure of a text editor. (10 Marks)
- b. Explain the features of interactive debugging system. (10 Marks)
- 6 a. Explain any three machine independent macro processor features. (10 Marks)
- b. Write an algorithm for a one pass macro processor. (10 Marks)
- 7 a. What is regular expression? Briefly explain all the characters that form regular expression. (12 Marks)
- b. Write a LEX program to count the number of characters, words, spaces and lines in a given input. (08 Marks)
- 8 a. Write a YACC program to evaluate an arithmetic expression involving operators +, -, \*, /. (08 Marks)
- b. Explain shift reduce parsing with an example. (08 Marks)
- c. Define the following terms: i) yytext, ii) yylval, iii) yylex, iv) yyparse. (04 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.