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06CS52

# Fifth Semester B.E. Degree Examination, June/July 2011
## 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 following with reference to SIC/XE machine architecture :
   i) Instruction formats
   ii) Addressing modes
   iii) Data formats
   iv) Register organization. **(10 Marks)**

c. Write an ALP in SIC/XE to add 2 arrays of 100 integers. **(06 Marks)**

2 a. Explain the different data structures used in designing SIC assembler. **(08 Marks)**

b. Discuss pass 1 algorithm of 2 pass assembler. **(10 Marks)**

c. What are assembler directives? Give examples. **(02 Marks)**

3 a. Differentiate between program blocks and control sections. Explain how control sections are processed. **(10 Marks)**

b. Differentiate between literal and immediate operand with example. **(04 Marks)**

c. Discuss different design options of assembler. **(06 Marks)**

4 a. What is a loader? List the functions of 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. Explain the structure of a text editor. **(10 Marks)**

b. Describe interactive debugging system. **(10 Marks)**

6 a. Explain various data structures required for the design of a macro processor with an example. **(10 Marks)**

b. Explain any three m/c independent macro processor features. **(10 Marks)**

7 a. Explain the structure of LEX specification with example. **(10 Marks)**

b. Discuss how lexer and parser communicate. **(10 Marks)**

8 a. Write YACC specification to recognize nested If control statements and display the number of levels of nesting. **(10 Marks)**

b. Differentiate between lex and yacc. **(05 Marks)**

c. Define the following terms with examples :
   i) Non – terminals.
   ii) y.tab.h
   iii) Symbol table
   iv) Pattern
   v) Lexical analysis. **(05 Marks)**

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