CS51

NEW SCHEME

Reg. No. | | | | | | | | | | |

Fifth Semester B.E. Degree Examination, January/February 2006

Computer Science/Information Science and Engineering

Systems Software

Time: 3 hrs.) (Max.Marks : 100

Note: *Answer any FIVE full questions.*

1. (a) With reference to SIC/XC machine architecture explain
   i) Instruction formats ii) addressing modes
   iii) Data formats iv) Register organisation (10 Marks)

   (b) Differentiate between CISC and RISC machine architecture. (4 Marks)

   (c) Suppose that ALPHA is an array of 100 words. Write a sequence of instruction for SIC/XC to set all 100 elements of the array to 0. Use immediate addressing and register to register instructions to make process as efficient as possible. (6 Marks)

2. (a) What are assembler directives? Give examples. (2 Marks)

   (b) Explain the algorithm for one pass of two pass assembler. (10 Marks)

   (c) What is the need for relocation of the program? With an example explain how relocation can be done. (8 Marks)

3. (a) Briefly explain a simple boot-strap loader with an algorithm. (8 Marks)

   (b) Explain with example the data structures used for a linking loader. (6 Marks)

   (c) With sketch explain how object program can be processed using linkage editor. (6 Marks)

4. (a) List the different tables used for a macro processor. Explain their functions. (6 Marks)

   (b) With an example explain conditional macro expansion. (6 Marks)

   (c) Write a note on processing macro within language translators. (8 Marks)

5. (a) With suitable example explain lexical analysis phase of a compiler. (10 Marks)

   (b) Describe the code generation for a read statement. (10 Marks)

6. (a) Explain the structure of lex program with example. (6 Marks)

   (b) Write a YACC program to recognize the grammar $a^n b / n > 0$. (8 Marks)

   (c) Explain with an example reduce-reduce conflicts and shift reduce conflicts. (6 Marks)

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7. (a) Write a note on P-code complier. **(6 Marks)**

   (b) List the important tasks to be accomplished by a text editor for an interactive user - computer dialogue. **(4 Marks)**

   (c) With figure explain the structure of an editor. **(10 Marks)**

8. Write short notes on :

   (a) SPARC assembler

   (b) Program blocks

   (c) MASM macro processor

   (d) Dynamic linking. **(5×4=20 Marks)**

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