

USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CS51

**Fifth Semester B.E. Degree Examination, Dec.08 / Jan.09**  
**Systems Software**

Time: 3 hrs.

Max. Marks:100

**Note : Answer any FIVE full questions.**

- 1 a. Differentiate between CISC and RISC machine architectures. (04 Marks)  
b. With reference to Pentium Pro architecture, explain  
i) Registers ii) Memory iii) Instruction set (06 Marks)  
c. Explain SIC/XE machine instruction formats and all addressing modes, clearly indicating setting of flag bits. (10 Marks)
- 2 a. Write and explain the algorithm for pass 1 of two-pass assembler. (10 Marks)  
b. Give the format for the following records necessary to obtain object code with an example for each :  
i) Header record ii) Text record iii) Refer record  
iv) Define record v) Modification record (revised) (10 Marks)
- 3 a. Write explanatory notes on :  
i) Multi-pass assembler ii) MASM assembler (10 Marks)  
b. Write the algorithms for pass 1 and pass 2 of a linking loader. (10 Marks)
- 4 a. What is a bootstrap loader? Write and explain an algorithm of bootstrap loader. (10 Marks)  
b. Briefly describe the significant features of the Microsoft MS-DOS linker for Pentium and other X86 systems. (10 Marks)
- 5 a. Explain the different debugging functions and capabilities. (06 Marks)  
b. With a neat diagram, explain the structure of a text editor. (10 Marks)  
c. Write a short note on compiler-compiler. (04 Marks)
- 6 a. Write the algorithm for one pass macro processor and explain. Briefly discuss various data structures required for a design of a macro processor. (12 Marks)  
b. Illustrate the conditional assembly of MASM macro processor. (08 Marks)
- 7 a. Explain the different phases of a compiler. (10 Marks)  
b. Explain the three basic sections of LEX program. Write a program in LEX to count the number of vowels and consonants in a given string. (10 Marks)
- 8 a. What are the important features of recursive descent parser? Write recursive descent parser routine for a WRITE statement of PASCAL language. The grammar is :  
<write> ::= WRITE (<id - list>)  
<id-list> ::= id { , id } (10 Marks)  
b. How does a compiler deal with block structured language? (10 Marks)

\*\*\*\*\*