D 4035

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Third Semester

Computer Science and Engineering

CS 1203 — SYSTEM SOFTWARE

(Common to Information Technology)

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define upward compatibility in systems.

2. Distinguish between direct addressing and indirect addressing.

3. Consider the following sequence

```
X    EQU    Y
Y    EQU    Z
Z    RESW   1
```

Is a two pass assembler can resolve such a sequence of definition? Justify your answer.

4. What is the data structure used to organize the symbol table and operation code table in a simple assembler? Why it is preferred?

5. What are the advantages of dynamic linking?

6. What is the function of pass 2 of a loader?

7. What is the use of DEFTAB (Definition table) NAMTAB (Name table) and ARGTAB (Argument table) in macro processor?

8. What is the purpose of conditional compilation statement in ANSI C preprocessor?

9. What are the tasks performed by document editing process?

10. How the mapping of view buffer to a window is done?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the SIC machine architecture. (8)

(ii) Write a sequence of instructions for SIC to set (8)

VAL 1 = VAL 2 + INCR-2

VAL 3 = VAL 4 + INCR-2

Illustrate how the same calculation could be performed on SIC/XE.

Or

(b) (i) Explain the SIC/XE machine architecture. (8)

(ii) The variables V1, V2 and V3 are assumed as an array of 100 words each. Write a sequence of instructions for SIC to add together the corresponding elements of V1, V2 and store in V3. (8)

12. (a) (i) Write the algorithm for Pass 1 assembler. (10)

(ii) Explain program relocation with example. (6)

Or

(b) Explain in detail about the machine independent features of assembler. (16)

13. (a) Explain the design of relocating loader with an example. (16)

Or

(b) Write short notes on :

(i) Linkage editor. (8)

(ii) Dynamic linking. (8)

14. (a) (i) Explain with an example how macro processor allows the invocation of macro with in macro. (8)

(ii) Discuss the macro processing features of ANSI C programming language. (8)

Or

(b) Explain the various machine independent features of Macro processor in detail. (16)

15. (a) (i) Explain the various types of user interfaces. (8)

(ii) Discuss the nature of the user interface for an interactive debugger. (8)

Or

(b) (i) Explain the structure of a text editor. (10)

(ii) Explain the important functions of an interactive debugging system. (6)