



**Fifth Semester B.E. Degree Examination, July/August 2022**  
**System Software**

Time: 3 hrs

Max. Marks:100

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

**PART – A**

- 1 a. Explain the following features of SIC/XE machine architecture: (10 Marks)
  - i) Registers
  - ii) Memory
  - iii) Input and Output.
- b. Explain SIC/XE machine instruction formats and all addressing modes by clearly indicating the setting of different flag bits. (10 Marks)
- 2 a. What are the steps required to translate source code to object code. Write the format of header, text and end records. (09 Marks)
- b. What are the data structures used in assembler? Write pass-2 algorithm of assembler. (11 Marks)
- 3 a. Explain how literals are handled in SIC/XE. (06 Marks)
- b. Explain the multipass assembler with an example. (08 Marks)
- c. Explain the features of MASM assembler. (06 Marks)
- 4 a. Write the source program or algorithm of a simple bootstrap loader. Explain. (08 Marks)
- b. Explain the dynamic linking with suitable diagrams. (08 Marks)
- c. Distinguish between linking loader and linkage editors. (04 Marks)

**PART – B**

- 5 a. Define document. What are the tasks accomplished by document editing process? (04 Marks)
- b. With neat diagram explain structure of editor. (08 Marks)
- c. What are the debugging functions and capabilities? (08 Marks)
- 6 a. Write the algorithm for a one pass macroprocessor. (08 Marks)
- b. Explain recursive macro expansion with an example. (06 Marks)
- c. Explain the features of ANSI C macro processor. (06 Marks)
- 7 a. Explain the structure of “LEX”. (06 Marks)
- b. Explain the “Parser-lexer communication”. (06 Marks)
- c. Give the LEX and YACC specifications to recognize parenthesized arithmetic expressions. (08 Marks)
- 8 a. What is parser? What is the output expected from parser? Write following CFG in YACC equivalent form (04 Marks)
 
$$A \rightarrow BC + \mid CD - \mid EF * \mid \epsilon$$
- b. Write a YACC program to evaluate given expression using un-ambiguous grammar. (08 Marks)
- c. What is the need of priority and associativity? Show with program how they are implemented in YACC program. (08 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.