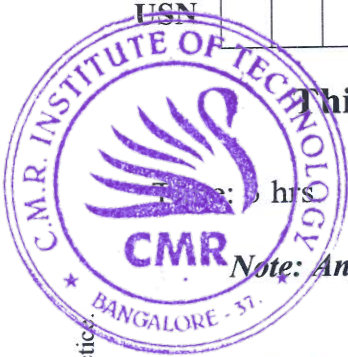


CBCS SCHEME

18MCA34



USN

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Third Semester MCA Degree Examination, Jan./Feb. 2023 System Software

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the SIC machine architecture with respect to memory, registers, data formats, instruction format and addressing modes. (10 Marks)
- b. Write the sequence of instructions to illustrate the arithmetic operation for SIC and SIC/XE machine architecture. (10 Marks)

OR

- 2 a. Explain the basic functions and directives of an assembler. (10 Marks)
- b. Write an algorithm for Pass-2 assembler. (10 Marks)

Module-2

- 3 a. Explain the concept of program relocation with the help of a neat diagram. (10 Marks)
- b. Explain Literals and symbol-defining statements with an example each. (10 Marks)

OR

- 4 a. Describe the concept of multi-pass assembler. (10 Marks)
- b. Explain the following : (10 Marks)
 - (i) Program blocks.
 - (ii) MASM Assembler

Module-3

- 5 a. Briefly explain the bootstrap loader with an algorithm. (10 Marks)
- b. Write an algorithm for Pass 1 and Pass 2 of linking loader. (10 Marks)

OR

- 6 a. Explain the Linkage editor and Dynamic linking loader design options with neat diagram. (10 Marks)
- b. Write a short note on : (10 Marks)
 - (i) Automatic Library Search.
 - (ii) MS-DOS Linker

Module-4

- 7 a. Write an algorithm for one-pass macroprocessor. (10 Marks)
- b. Explain diagram data structures used by macroprocessor with neat diagram. (10 Marks)

OR

- 8 a. Explain the following machine-independent macroprocessor features : (10 Marks)
 - (i) Conditional macro expansion.
 - (ii) Generation of unique labels.
- b. Write a note on following : (10 Marks)
 - (i) General purpose macroprocessor.
 - (ii) MASM macroprocessor

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.

Module-5

- 9 a. Explain the following :
- (i) Grammer
 - (ii) Lexical Analysis
 - (iii) Syntactic Analysis
 - (iv) Code generation
- (10 Marks)
- b. Explain recursive descent parsing. Write recursive descent parse for 'READ' statement.
- (10 Marks)

OR

- 10 a. Explain the following compiler design options :
- (i) Division into passes
 - (ii) P-code compiler
- (10 Marks)
- b. Write a note on :
- (i) SunOS compiler
 - (ii) Compiler-Compilers
- (10 Marks)
