

# CBCS SCHEME



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18MCA34

Third Semester MCA Degree Examination, Jan./Feb. 2021

## System Software

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Explain the instruction formats and addressing modes of SIC/XE machine architecture. (10 Marks)
- b. Explain with example simple input and output operations on SIC/XE machine architecture. (05 Marks)
- c. What is System Software? Differentiate it from Application Software. (05 Marks)

OR

- 2 a. Explain the architectures of Complex Instruction Set Computer (CISC) machines. (10 Marks)
- b. Explain the basic assembler functions and any six assembler directives with example. (10 Marks)

### Module-2

- 3 a. Explain program relocation with suitable example and also explain how the relocation problem is solved. (10 Marks)
- b. Explain the following machine independent assembler features:
  - (i) Literals
  - (ii) Symbol defining statements
  - (iii) Program blocks. (10 Marks)

OR

- 4 a. Explain the types of one pass assembler. (10 Marks)
- b. Write short notes on the following :
  - (i) MASM assembler
  - (ii) Multipass assembler. (10 Marks)

### Module-3

- 5 a. Briefly explain absolute loader with the algorithm or source program. (10 Marks)
- b. Explain the machine independent loader features:
  - (i) Automatic library search
  - (ii) Loader options. (10 Marks)

OR

- 6 a. Explain Loader design options. (10 Marks)
- b. Explain relocation loader algorithm. (10 Marks)

### Module-4

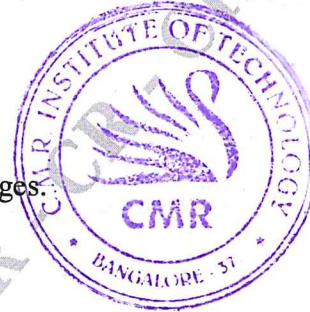
- 7 a. Explain macroprocessor algorithm. (10 Marks)
- b. Explain the following machine independent macroprocessor features:
  - (i) Concatenation of macro parameters
  - (ii) Generation of unique labels (10 Marks)

OR

- 8 a. Define MACRO. Explain macro definition and expansion with suitable example. (10 Marks)  
b. Explain the advantages and disadvantages of general purpose macroprocessors. (10 Marks)

**Module-5**

- 9 a. Explain the following :  
(i) Interpreter (10 Marks)  
(ii) P-code compilers. (10 Marks)  
b. Explain the tool compiler-compilers and also its advantages. (10 Marks)



OR

- 10 a. Explain about code generation phase of compiler. (10 Marks)  
b. Briefly discuss the different machine dependent code optimization techniques. (10 Marks)

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