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10CS52

Fifth Semester B.E. Degree Examination, June/July 2019

Systems Software

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain SIC/XE machine instruction formats. (08 Marks)
- b. Differentiate between CISC and RISC. (06 Marks)
- c. Write the programs in SIC:
 - i) to copy the string 'IT SECTOR' to another string
 - ii) to perform $P1 = P2 - P3 + 3$ where P1, P2 and P3 are integers. (06 Marks)

- 2 a. Explain any four assembler directives of SIC/XE machine with an example for each. (06 Marks)
- b. Explain the algorithm for pass 1 of two pass assembler. (08 Marks)
- c. Generate the object program for the following SIC program.


```

SS  START 2000
LI   LDA  X
      ADD  Y
      STA  Z
X    RESW 1
Y    RESW 1
Z    RESW 1
      END  L1
      opcodes : LDA – 00, ADD – 18, STA - 0C
```

 (06 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. Explain the processing of an object program using linking loader and linkage editors with neat diagrams. (08 Marks)
- b. Explain the bootstrap loader for SIC/XE. (08 Marks)
- c. Write a short note on MS-DOS linker. (04 Marks)

PART – B

- 5 a. Explain the structure of text editor with a neat diagram. (10 Marks)
- b. Briefly explain the user interface criteria in a text editor. (04 Marks)
- c. Explain the interactive debugging functions and capabilities. (06 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 different sections of a LEX program with an example. (08 Marks)
- b. Explain the use of following characters that form regular expression with an example for each.
- i) *
 - ii) ^
 - iii) { }
- c. Write a lex program to count the number of characters, words, spaces and lines in a given input file. (06 Marks)
- 8 a. Write a YACC program to recognize the given arithmetic expression containing +, -, * and / operators. (08 Marks)
- b. Explain shift-reduce parsing with an example. (06 Marks)
- c. Discuss the following terms with an example for each:
- i) Ambiguous grammar
 - ii) Recursive rules
- (06 Marks)

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