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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 - OC **(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) { }

(06 Marks)

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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