CBCS SCHEME

USN

15CS63

(06 Marks)

Max. Marks: 80

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 System Software and Compiler Design

Time: 3 hrs.

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

Module-1

- a. Explain the various instruction formats used in SIC/XE machine. (04 Marks)
 - b. Write a SIC/XE program to copy the string "COMPUTER SCIENCE ENGINEERING" from STR1 to another string STR2.
 - c. List the functions of Pass-1 and Pass-2 of a two pass assembler. (06 Marks)

OR

- 2 a. Write an algorithm of the Pass-1 of a two pass assembler. (08 Marks)
 - b. List the various machine independent assembler features. Explain the control-sections, how the assembler converter them into object code. (08 Marks)

Module-2

- a. Define Macro. Explain how Macros are defined and expanded. (07 Marks)
 - b. What are the basic functions of a loader? Explain two ways of program relocation in loaders. (09 Marks)

OR

- 4 a. Explain the functions of dynamic linking with a diagram. (08 Marks)
 - b. Write a note on MS-DOS linker. (08 Marks)

Module-3

- 5 a. Explain the different phases of a compiler, with an example. (09 Marks)
 - What is input buffering in lexical analysis? List the different methods of input buffering explain any one of them. (07 Marks)

OR

- a. List and explain the reasons for separating the analysis portion of a compiler into lexical and syntax analysis phases. (06 Marks)
 - b. Construct the transition diagram to recognize the tokens of
 - i) (dentifier ii) Relational operators iii) Unsigned numbers.
 - c. Define Tokens, patterns, lexemes. (04 Marks)

Module-4

- 7 a. What is the role of parser? Explain the different error recovery strategies. (08 Marks)
 - b. Construct the LL(1) parsing table for the following productions:
 - $E \rightarrow E + T/T ; T \rightarrow T * F/F ; F \rightarrow (E)/id$ (08 Marks)

1 of 2

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- a. Using operator-precedence parsing algorithm, construct the table and parse the input string id + id * id.
 - b. Define Handle, viable prefixes.

(04 Marks)

Module-5

Discuss S-attributed and L-attributed SDD.

b. Write 3-address code syntax tree and DAG for the expression a + a * (b - c) + (b - c) * d.

(10 Marks)

OR

10 a. Obtain the SDD and construct annotated parse tree for the input string 6 * 5

 $S \rightarrow EN$

 $E \rightarrow E + T/T$

 $T \rightarrow T * F/F$

 $F \rightarrow (E)/digit$

 $N \rightarrow ;$ b. Discuss the issues in the design of code generator. (10 Marks)

(06 Marks)