TCS–501

B. TECH. (CSE) (FIFTH SEMESTER)

END SEMESTER EXAMINATION, 2021-22

SYSTEM SOFTWARE

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among

(a), (b) & (c) in each main question.

(iii) Total marks in each main questions are

twenty.

(iv) Each question carries 10 marks.

1. (a) Discuss various instruction formats in SIC

(XE) with example. Also discuss different

dressing modes.

(CO1)

(b) Discuss the different types of softwares and licensing. Also discuss SIC machine architecture in detail. (CO1)

(c) The addresses and corresponding memory contents are given. Find out the values that will be loaded into Accumulator after execution of the following Hex instructions:

Given: Memory Content

Address	Content
3030	003600
3600	103000
6390	00C303
C303	003030

Given: (B) = 006000 (CO1)
(PC) = 003000
(X) = 000090

Hex Instructions	Values of be loaded into Accumulator (₹)
032600	
03C300	
022030	
010030	
003600	
0310C303	

2. (a) Discuss program relocation with the help of an assembly program. Also, compare with absolute program. (CO2)

(b) Discuss the following with examples: (CO2)

(i) Literals

(ii) Symbol defining statements

(iii) Expressions

(iv) Program blocks

(c) Discuss forward referencing problem in assemblers with example and mention how it can be resolved. Also discuss load and go assembler with its strengths and limitations. (CO2)

3. (a) Discuss the functioning of Assembler and Go Loader and Bootstrap Loader. (CO3)

(b) Suppose you have multiple control sections, then at the time of linking how linker link these sections. Discuss whole process with example. (CO3)

(c) Write a short note on the user interface and the text editor. Also discuss dynamic linking with the help of a neat diagram. (CO3)

4. (a) Explain the different types of data structures used in macroprocessor. (CO4)

(b) Discuss one pass macroprocessor in detail. Also compare it with two pass macroprocessor. (CO4)

(c) Explain machine independent macroprocessor features in detail. (CO4)

5. (a) Explain the Lex with general syntax and write a Lex program to check whether the number is even or odd. (CO5)

(b) Discuss YACC in detail with the help of a block diagram. (CO5)

(c) Write Lex-YACC program to check whether aaabbb is present or not in the given language. The Grammar is as follows : (CO5)

$S \to ASB | \varepsilon$

$A \to a$

$B \to b$