Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester V - 2021
Course Code : CSE2050
Course Name : Sem V - CSE2050 - System Software
Program : B. TECH

Date : 2-NOV-2023
Time : 9:30AM - 11:00AM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS **(10 X 1 = 10M)**

1. _____table includes the name and value for each label in the source program, together with flags to indicate the error conditions.

(CO1) [Knowledge]

2. Pick the odd one out from the following.

1. During Pass 1: labels are entered into the symbol table along with their assigned address value as they are encountered. All the symbols address value should get resolved at the pass 1.
2. During Pass 2: Symbols used as operands are looked up the symbol table to obtain the address value to be inserted in the assembled instructions.
3. SYMTAB is usually organized as a hash table for efficiency of insertion and retrieval. Since entries are rarely deleted, efficiency of deletion is the important criteria for optimization.
4. Both pass 1 and pass 2 does not require reading the source program.

(CO1) [Knowledge]

3. Which among the below features do not depend on the architecture of the machine.

1. Literals
2. Expressions
3. Program blocks
4. None of the above

(CO1) [Knowledge]

4. Write down one difference between program counter and base relative

(CO1) [Knowledge]

5. Which Instruction loads character data into Accumulators?

(CO1) [Knowledge]

6. In SIC/XE machine, _____ is the maximum size of any Instruction.

1. 1 byte instruction
2. 2 byte instruction
3. 3 byte instruction
4. 4 byte instruction

(CO1) [Knowledge]

7. With respect to Pass-2 Assembler Design, which among the following is Incorrect.

1. Generate data values defined by BYTE, WORD etc.
2. Write the object program and assembler listing
3. Perform the processing of the assembler directives not done during *pass-1*.
4. None of the above

(CO1) [Knowledge]

8. In SIC/XE machine architecture, each register is ___ bits in length

(CO1) [Knowledge]

9. SIC machine architecture has ____ Address Lines

(CO1) [Knowledge]

10. In SIC machine architecture, for Indexed Addressing Mode, Target Address is calculated as _____.

(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS **(2 X 10 = 20M)**

11. Explain the following with reference to SIC/XE Machine architecture:
i) Memory
ii) Data formats and Instruction formats

(CO2) [Comprehension]

12. Consider the following Scenario:
You're developing an assembler for a custom computer architecture. Explain the importance of addressing machine-independent features and provide examples of such features in the context of assembly language design. With respect to Assembler Design, Describe Machine Independent Features

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION **(1 X 20 = 20M)**

13. Consider the following scenario:
Imagine you're tasked with designing the PASS-1 Assembler for a new computer architecture. Write and explain the key steps and considerations involved in creating the algorithm for PASS-1 by highlighting its significance in the assembly process

(CO2) [Application]