USN | | | | | | | | | | **10CS52**

Fifth Semester B.E. Degree Examination, Feb./Mar. 2022
Systems Software

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1   a.   Define System Software and Application Software.   **(04 Marks)**
    b.   Explain SIC/XE machine instructions formats and addressing modes by clearly indicating setting of different flag bits.   **(10 Marks)**
    c.   Suppose that ALPHA and BETA are the two arrays of 100 words. Another array of GAMMA elements are obtained by adding the corresponding ALPHA elements with BETA elements. Write SIC/XE program, use immediate addressing and register to register instructions to make the process as efficient as possible.   **(06 Marks)**

2   a.   Explain the following with an example i) RESW ii) EQU iii) ORG iv) CSECT. **(08 Marks)**
    b.   What is the need for 2-pass assembler? Explain with an example.   **(04 Marks)**
    c.   Write an algorithm for Pass 1 of 2-Pass assembler.   **(08 Marks)**

3   a.   What is a literal? When LTORG is used? Explain with an example.   **(04 Marks)**
    b.   Compare a 2-pass assembler with a 1-pass assembler. How forward references are handled in one pass assembler?   **(10 Marks)**
    c.   Explain Multipass assembler with an example.   **(06 Marks)**

4   a.   Define Loader? What are the basic functions of a loader?   **(04 Marks)**
    b.   What do you mean by relocating loaders? Explain the methods for relocation as a part of object program.   **(10 Marks)**
    c.   Explain Dynamic linking. Discuss its advantages.   **(06 Marks)**

PART – B

5   a.   Explain briefly, structure of a typical editor with the help of suitable block diagram.
                                                                              (08 Marks)
    b.   Discuss the relationship between editing and viewing buffers functions. **(06 Marks)**
    c.   Write a note on the aspect of user interface criteria.   **(06 Marks)**

6   a.   Define the structure of a macro, with an example.   **(04 Marks)**
    b.   Explain with an example the various datastructures used in the implementation of macroprocessor.   **(06 Marks)**
    c.   Explain the following :
         i) Conditional macro expansion
         ii) Recursive macro processor   **(10 Marks)**

7   a.   Explain the specification of a Lex program.   **(04 Marks)**
    b.   Write a lex program to recognize and count the number of identifiers in a given input life.
                                                                              (06 Marks)
    c.   What is regular expression? Briefly explain all the characters that form regular expression.
                                                                              (10 Marks)

8   a.   Explain how YACC programs are complied.   **(04 Marks)**
    b.   What is a conflict? Explain different types of conflicts, with an example. **(06 Marks)**
    c.   Write YACC program to evaluate an arithmetic expression for the operators additions, subtraction, multiplication, division and unary minus operations.   **(10 Marks)**

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