MCA-15/M.Sc(IT)-15
SYSTEM SOFTWARE

Master of Computer Applications
Master of Science in Information Technology
(MCA/MSc.IT-11/12/16/17)

Fourth Semester, Examination-2020

Time Allowed : 2 Hours   Maximum Marks : 80

Note : This paper is of Eighty (80) marks divided into Two (02) sections A and B. Attempt the question contained in these sections according to the detailed instructions given therein.

Section-A

(Long Answer Type Questions)

Note : Section-'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any two (02) questions only.   (2×20=40)

1. Answer the following :

    (a) What are the basic concepts of Linkers? What is the difference between 'Static' and 'Dynamic' linking?   7

    (b) What is compiler?   3

    (c) What is bootstrap loader? Explain.   5

    (d) What is Context free grammar?   5

2. Answer the following :

    (a) What is a file management system?   5

    (b) What is the purpose of DLL?   5

    (c) What is syntax tree? How is it created? 5

    (d) Why is syntax analysis performed?   5

3. Explain the phases related to a compiler.   20

4. Explain the concept of non-deterministic finite automata.   20

5. Write the procedure to convert DFAs to regular expression.   20

Section-B

(Short answer type questions)

Note: Section-B Contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any four (04) questions only. (4×10=40)

1. What is syntax analysis? What is the role of parser in syntax analysis? Explain. 10

2. What is 'Chomshy Hieracrhy'? Explain with suitable diagram and algorithms. 10

3. Answer the following :

   (a) Briefly discuss the importance of LL (1) and LR parser. 5

   (b) Distinguish between one pass and two pass assembler. 5

4. With the help of an example explain the difference between Type-0 and Type-2 grammar. 10

5. Briefly explain the design of an assembler. 10

6. Answer the following :

   (a) Explain the main functions of a linker. 5

   (b) Define a macro. Illustrate with an example. 5

7. Answer the following :

   (a) Differentiate between top down and bottom up parsing. 5

   (b) What is assembler? What are the differences between compiler and assembler? Explain. 5

8. Answer the following :

   (a) Distinguish between a linker and a loader with the help of examples. 5

   (b) Define one pass assemblers. 5

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