

MCA–15/M.Sc.(IT)–15

System Software

Master of Computer Applications/Master of
Science in Information Technology
(MCA/M.Sc.IT–11/12/16/17)

Fourth Semester, Examination, 2017

Time : 3 Hours

Max. Marks : 80

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Attempt the questions contained in these Sections according to the detailed instructions given therein.

Section–A

(Long Answer Type Questions)

Note : Section ‘A’ contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Explain the following machine independent macro features :
 - (a) Concatenation of macro parameters
 - (b) Generation of unique labels
 - (c) Keyword macro parameters
2. What is compiler ? Explain the structure of compiler.

3. Why does linking loader require 2 passes to complete loading ? Explain the operations of linking loader. Discuss the various types in MS-DOS linker.
4. Explain the significance of EQU and ORIGIN statement in the program and explain how they are processed by the assembler.

Section-B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. Differentiate between system software and application software.
2. Explain syntax directed translation.
3. What are *three* types of assembly language statements ? What are the disadvantages of assembly language program ?
4. What is the purpose of relocation bit in object code of relocation loader ? Explain the functions of a loader.
5. What is the use of code optimization techniques ? Explain any *one* of the code optimization techniques.
6. Differentiate Top-down and Bottom-up parsing techniques. Explain briefly recursive descent parser with an example.
7. What is symbol table ? Write a LEX program to implement symbol table.
8. Write a program for SIC machine to copy 11 byte string from one location to another.

Section-C**(Objective Type Questions)**

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. Translator for low level programming language were termed as :
 - (a) Assembler
 - (b) Compiler
 - (c) Linker
 - (d) Loader
2. The translator which performs macro expansion is called a :
 - (a) Macro processor
 - (b) Macro pre-processor
 - (c) Micro pre-processor
 - (d) Assembler
3. Which of the following loaders is executed when a system is first turned on or restarted ?
 - (a) Boot loader
 - (b) Compile and Go loader
 - (c) Bootstrap loader
 - (d) Relating loader

4. Storage mapping is done by :
 - (a) Loader
 - (b) Linker
 - (c) Operating system
 - (d) Compiler
5. Yacc is available as a command on the :
 - (a) Minx
 - (b) Unix
 - (c) DOS
 - (d) None of the above
6. In Lex, a class is complemented by first placing :
 - (a) ^
 - (b) OR
 - (c) –
 - (d) NOT
7. Parsing is also known as :
 - (a) Lexical analysis
 - (b) Syntax analysis
 - (c) Semantic analysis
 - (d) Code generation
8. Bottom up parsing involves :
 - (a) Shift reduce
 - (b) Handle pruning
 - (c) Operator check
 - (d) Both (a) and (b)

9. Which of the following system software resides in main memory always ?
- (a) Text Editor
 - (b) Assembler
 - (c) Linker
 - (d) Loader
10. A Lex compiler code generates :
- (a) Lex object code
 - (b) Transition tables
 - (c) C tokens
 - (d) None of the above

