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, 2018

Time : 3 Hours **Max. Marks : 80**

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to 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. What is 'compiler' ? Why is compiler used for 'intermediate representation' ? What is the intermediate representation format ?

2. What is Lexical Analysis ? What are its roles ? Also explain significance of programs.

3. What is the importance of loader ? Differentiate between various types of loaders. Also explain overlays.

4. What do you understand by Code Generation ? What is intermediate language and declaration while intermediate code generation ?

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. What is the difference between 'Assembly Language' and 'Assembly Process' ? Explain.

2. What do you understand by 'Data Structures' ? Explain in detail.

3. What are the 'Phases of Compiler' ? Explain each.

4. What do you mean by 'Language and Grammar' during compilation ?

5. What do you understand by 'Significance' and 'Recognition' of Tokens ?

6. Explain the following in brief :

   (i) Finite Automata

   (ii) Lexical Analyzer

   (iii) Lexical Analyzer Generator (LEX)

7. What is 'Content Free Grammars' with reference to syntax analysis ? Explain.

8. What is 'Runtime Storage Management' ? Also explain 'assignment statements'.

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. Assembler is a machine dependent, because of :
   (a) Argument list array (ALA)
   (b) Macro Definition Table (MDT)
   (c) Pseudo Operation Table (POT)
   (d) Mnemonics Operation Table (MOT)

2. A program :
   (a) is a sequence of instructions
   (b) is the device where information is stored
   (c) is a device that performs a sequence of operations specified by instructions in memory
   (d) None of these

3. Macro-processor is an inbuilt function of :
   (a) Assembler
   (b) Loader
   (c) Linker
   (d) Editor

4. A processor :
   (a) is a sequence of instructions
   (b) is the device where information is stored
   (c) is a device that performs a sequence of operations specified by instructions in memory
   (d) None of these

5. Storage mapping is done by :

   (a) Linker

   (b) Compiler

   (c) Loader

   (d) Operating system

6. Assembler is :

   (a) A program that places programs into memory an prepares them for execution.

   (b) A program that appears to execute a source program as if it were machine language.

   (c) A program that automate the translation of assembly language into machine language.

   (d) A program that accepts a program written in high level language and produces an object program.

7. Which of the following derivation a top-down parser use while parsing an input string ? The input is assumed to be scanned in left to right order :

   (a) Leftmost derivation

   (b) Rightmost derivation

   (c) Leftmost derivation traced out in reverse

   (d) Rightmost derivation traced out in reverse

8. The .... of a system includes the programs or instructions.

   (a) Icon

   (b) Software

   (c) Hardware

   (d) Information

9. Which of the following functions is performed by loader ?

   (a) Adjust all address dependent locations, such as address constants, to correspond to the allocated space

   (c) Allocate space in memory for the programs and resolve symbolic references between objects decks

   (c) Physically place the machine instructions and data into memory

   (d) All of the above

10. In an absolute loading scheme, which loader function is accomplished by programmer ?

   (a) Linking

   (b) Allocation

   (c) Both (a) and (b)

   (d) Reallocation