

Roll No. 180179804

6/5/19  
MCA-11/19

Total Pages : 03

**MCA/M-19** **10501**  
**SYSTEM PROGRAMMING**  
**MCA-14-21**

Time : Three Hours]

[Maximum Marks : 80

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. (a) What is the Chomsky hierarchy of formal languages ?
- (b) What is the difference between absolute and relocatable loader ?
- (c) Differentiate between top-down and bottom-up parsing.
- (d) What do you understand by static and dynamic scoping ?

**Unit I**

2. (a) What do you understand by user-centric and system-centric view of system software ? Explain.
- (b) What is symbol table ? Discuss the structure of it.

3. (a) What is system software ? What are the goals of system software ? Explain.
- (b) What is compiler ? What are the different stages in compilation ? Discuss.

## Unit II

4. What are the different parameter passing mechanism in macro processors ? Discuss
5. What is forward referencing problem ? How is it solved in one-pass assembler ? Explain.

## Unit III

6. (a) Define loader and enlist the basic functions performed by loader.
- (b) Differentiate between regular grammar and context free grammar using suitable examples.
7. What is a parse tree ? How is it created in top-down parsing ? Explain using recursive descent parsing.

## Unit IV

8. What do you understand by code optimization ? Discuss the following code optimizing transformations using suitable examples :
  - (a) Frequency reduction
  - (b) Strength reduction
  - (c) Common sub-expression elimination.

9. (a) What do you understand by binding and binding times ? What is the difference between static and dynamic binding ? Explain.
- (b) What is dynamic memory allocation ? Why is the need of dynamic memory allocation in recursion ? Explain.