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Total No. of Pages : 2

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**B.Tech. (CSE/IT) (Sem.-4)  
SYSTEM PROGRAMMING**

**Subject Code : CS-210**

**Paper ID : [A0462]**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

- 1. SECTION-A is COMPULSORY.**
- 2. Attempt any FOUR questions from SECTION-B.**
- 3. Attempt any TWO questions from SECTION-C.**

**SECTION-A**

**(10 × 2 = 20 Marks)**

1. Write short notes on :
  - (a) Syntax Analysis
  - (b) Lexical Analysis
  - (c) Debugging
  - (d) Linker
  - (e) Loader
  - (f) Editor
  - (g) Finite state machines
  - (h) Kernel
  - (i) Intermediate code
  - (j) Grammar of Language

**SECTION-B**

**(4 × 5 = 20 Marks)**

2. Describe the role of System Software in modern computer systems.

```
3.   SIMPLE          START
                                BALR      15,0
                                USING     *,15
                                LOOP
                                L          R1,TWO
                                A          R1,TWO
                                ST         R1,FOUR
                                CLI        FOUR+3,4
                                BNE       LOOP
                                BR        14
                                R1
                                TWO
                                FOUR
                                DS        F
                                END
```

- (a) Show the symbol table at the end of pass 1
  - (b) Show the literal table at the end of pass 1
  - (c) Show the changes in the base register table during pass 2
  - (d) Show the generated "machine" code from pass 2
4. Discuss the concept of linkers in detail.
  5. Discuss how the code is loaded into RAM.
  6. What is Bootstrapping? Discuss lexical and syntax analysis phases of compiler.

#### SECTION-C

(2 × 10 = 20 Marks)

7. Describe : (a) Formal Systems (b) Phases of Compilers
8. Discuss in detail the first and second pass of assembler with their algorithms.
9. Discuss LEX and YACC specifications in detail.