

A-0799

Total Pages : 3

Roll No.

BCA-20

Bachelor of Computer Application (BCA)

(System Programming)

Examination, June 2025

Time : 2:00 Hrs.

Max. Marks : 70

Note :- This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

Section-A

(Long Answer Type Questions) 2×19=38

Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

1. Define a language processor. What are the different phases and passes that a language processor has to go through before translating a source code into another ?
2. What is the role of an Assembler ? Discuss the two-pass structure of an assembler with a detailed explanation of the tasks in each pass.
3. Explain parsing with a suitable example. Discuss the differences between top-down parsing and bottom-up parsing, and explain with detailed examples for each.
4. Describe the role of LEX and YACC in language processor development. Provide an example of their use.
5. Design a simple context-free grammar (CFG) for arithmetic expressions and construct a parse tree for the expression $(A + B) * C - (D / E)$.

Section–B

(Short Answer Type Questions) $4 \times 8 = 32$

Note :- Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Explain static Vs. dynamic memory allocation. What happens if anyone tries to access a memory that is not allocated to the program ?
2. What is the significance of the classification of grammar ? Explain type 2, and type 3 Grammar.
3. Draw and explain in detail the PASS-1 flow chart of an assembler.
4. Discuss the intermediate code forms : postfix strings, triples, and expression trees, and their roles in the compilation.
5. Explain the concept of relocation in linking with a suitable example.
6. What is LALR parsing ? Explain with suitable example.
7. What is a terminal symbol in grammar ? Give an example.
8. What is Finite State Automation ? Draw How are FSAs used in lexical analysis during compilation ?
