D 51713 **(Pages : 2)** **Name.....**

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2023

B.C.A.

BCA 3C 06—THEORY OF COMPUTATION

(2019—2022 Admissions)

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer **all** *questions.*
Each correct answer carries a maximum of 2 *marks.*
Ceiling 20 *marks.*

1. Define a Set.
2. What do you mean by transitive relation ?
3. What is proof by contradiction ?
4. What do you mean by domain and range of a set ?
5. What are recursively enumerable sets ?
6. What are peculiarities of type 1 grammar ?
7. What are regular expressions ?
8. What is the peculiarity of a finite automaton ?
9. Define context-free grammar.
10. What is a derivation tree ?
11. What are regular sets ?
12. What is push down automata ?

Turn over

Section B (Paragraph / Problem Type)

Answer **all** *questions.*
Each correct answer carries a maximum of 5 *marks.*
Ceiling 30 *marks.*

13. Explain about properties of binary relation.
14. Explain about languages and their relations.
15. Describe transition diagrams and properties of transition functions.
16. Explain about regular sets and regular grammar.
17. Describe about derivation trees.
18. Explain about context free languages.
19. Explain in detail about Turing machines.

Section C (Essay Type Questions)

Answer any **one** *question, correct answer carries* 10 *marks.*

20. Explain about sets in detail.
21. Explain about normal forms of context free grammars.

(1 × 10 = 10 marks)