

D 92914

(Pages : 2)

Name.....

Reg. No.....

**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020**

BCA

BCA 3C 06—THEORY OF COMPUTATION

Time : Two Hours

Maximum : 60 Marks

Section A (Short Essay Type Questions)

*Answer at least **eight** questions.*

Each question carries 3 marks

All questions can be attended.

Overall Ceiling 24.

1. Define Top Down Parsing.
2. Explain algebraic laws for regular expression.
3. Differentiate between Mealy machine & Moore machine
4. What are the characteristics of automaton ?
5. What are the operations on sets ?
6. Define onto function with example.
7. What is yield ?
8. Explain representation of a digraph.
9. Explain Turing Machine Model.
10. Define Parse Tree with example.
11. Prove the following theorem by Induction : $1 + 2 + 3 + \dots + n = n(n + 1)/2$.
12. Explain Strings & their properties.

(8 × 3 = 24 marks)

Turn over

Section B (Short Essay Type Questions)*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Explain the steps for construction of minimum automaton.
14. Write different methods for representing Turing Machines.
15. Prove that the number of leaves in a binary tree T is $(n + 1)/2$, where ' n ' is the number of vertices.
16. Find $L(G)$, if $G = (\{S\}, \{0, 1\}, \{S \rightarrow 0S1, S \rightarrow \wedge\})$.
17. Construct a regular expression corresponding to the given transition table.

State	0	1
$\rightarrow q^1$	q^1	q^2
q^2	q^3	q^2
q^3	q^1	q^2

18. Prove the Pigeonhole principle by induction.
19. Explain algebraic laws for regular expression.

(5 × 5 = 25 marks)**Section C***Answer any one question.**The question carries 11 marks.*

20. Explain Kleene's Theorem.
21. Explain Chomsky classification of languages with example.

(1 × 11 = 11 marks)**<https://www.keralaguru.com>****Whatsapp @ 9300930012****Send your old paper & get 10/-****अपने पुराने पेपर्स भेजे और 10 रुपये पायें,****Paytm or Google Pay से**