

19U341

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Name: .....

Reg.No: .....

**THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2020**

(CBCSS - UG)

**CC19U BCA3 C06 - THEORY OF COMPUTATION**

(Computer Application - Complementary Course)

(2019 Admission - Regular)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

**Part A** (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Define Partition of Sets?
2. Define degree of a vertex?
3. List types of grammar
4. Design a DFA all strings has substring ba
5. What is transition systems?
6. Define  $\lambda$ -NFA?
7. State Moore Machine ?
8. Define trap state?
9. Define regular set?
10. Define derivation tree ?
11. Define Deterministic Pushdown automata?
12. Define Bottom up parsing ?

**(Ceiling: 20 Marks)**

**Part B** (Short essay questions)

Answer *all* questions. Each question carries 5 marks.

13. Prove that  $\sqrt{5}$  is irrational using proof by contradiction?

14. Explain Type-0 grammar with example?
15. Explain the conversion of  $\lambda$ -NFA to NFA with example?
16. Explain construction of a regular grammar for a given dfa with example?
17. Explain equivalence of two regular expression with example?
18. Narrate GNF with example?
19. Write a note on Turing machine with example?

**(Ceiling: 30 Marks)**

**Part C (Essay questions)**

Answer any *one* question. Each question carries 10 marks.

20. Explain in detail concepts of Strings with example?
21. State and explain closure properties of regular sets?

**(1 × 10 = 10 Marks)**

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