THIRD SEMESTER MODEL EXAMINATION

BCA

THEORY OF COMPUTATION

Time: 2 Hours **Maximum: 60 Marks**

Section A (Short Answer Type Questions)

Each correct answer carries a maximum of 2 marks.

Ceiling 20 marks.

1. Define finite automata?
2. Explain various ways of describing a set?
3. Fine R^+ if R={(a, b), (b, c), (c, a)}
4. Explain type 1 grammar and type 2 grammar with example?
5. Explain closure properties of a regular set?
6. Explain closure properties to CFG with example?
7. Define PDA?
8. Find the regular expression for the set of all string at most 2a's if alphabets set is {a, b}
9. What is a regular grammar?
10. Define function?
11. What is moore machine?
12. Explain arden's theorem?

Section B (Short Essay Type Questions)

Each correct answer carries a maximum of 5 marks.

Ceiling 30 marks.

13. Fine L(G), if G=({S}, {0, 1}, {S→0S1, S→Ɛ})
14. Explain strings and their properties.
15. Prove pigeonhole principle by induction?
16. Explain that number of vertices of odd degree in any graph is even.
17. Explain Chomsky classification of languages.
18. Construct a finite automata equivalent to the regular expression $(0+1)^*(00+11)(0+1)^*$.
19. Explain the steps for construction of minimum automaton.

Section C (Short Answer Type Questions)

Answer any one question

Correct answer carries 10 Marks

20. Explain how an NFA is converted to its equivalent DFA?
21. How can we eliminate Ɛ moves from transition system?