

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem.-3)
THEORY OF COMPUTATION
Subject Code : PGCA1927
M.Code : 90800
Date of Examination : 19-05-23

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

I. Write short notes on :

- a. Acceptability of a string
- b. Left Derivate
- c. Ambiguity
- d. CFL
- e. Type-0 grammar
- f. Transition Table
- g. Moore machines
- h. Right context
- i. Language
- j. Chain Rule Shell.

SECTION-B

2. Explain with example how NFA is converted to DFA machine.
3. Describe pumping lemma for regular set with the help of an example.
4. Find a reduced grammar equivalent to the given grammar

$$S \rightarrow AC \mid B, A \rightarrow a, C \rightarrow c \mid BC, E \rightarrow aA \mid e$$

5. Explain the concept of ambiguity with the help of example.

SECTION-C

6. Design PDA for $\{a^n b^m \mid n > m > 1\}$
7. Design Turing Machine of $\{0^n 1^n \mid n \geq 1\}$
8. Explain in detail the Chomsky classification of languages.
9. Write a note on unsolvable problem for context-free languages and classifying complexity.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.