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

1. 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 NDFA 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 $\{0^n1^n \mid n >=1\}$

8. Explain in detail the Chomsky classification of languages.

9. Write a note on unsolvable problem for context-free languages and classifying complexity.