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

l. 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.

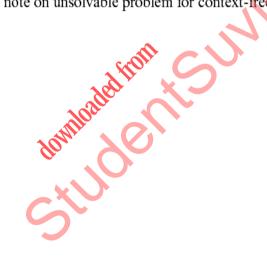4. Find a reduced grammar equivalent to the given grammar

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

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 $\{0^n 1^n \mid n >=1\}$

8. Explain in detail the Chomsky classification of languages.

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

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.