P-825

MCA-18

Formal Language and Automata

Master of Computer Application (MCA)

5th Semester Examination, 2023 (June)

Time : 2 Hours]   **[Max. Marks : 70**

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. What is Deterministic Finite State Automaton? DFA conceptually consist of how many parts?

2. What is Grammar? Give the Formal definitions of a Grammar? How will you find grammar for a language?

3. How to test Emptiness of Context Free Languages (CFL)?

4. For any CFG $G = (N, \Sigma, P, S)$ there is a CFG $G' = (N', \Sigma, P', S')$ in Chomsky normal form such that $L(G') = L(G)\{\in\}$ explain?

5. What is basis model of Turing machine? Explain with the help of an example.

SECTION–B
(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. What is Mealy machine?

2. What is PDA explain with example?

3. What is CFL and DCFL?

4. What is CNF and what are steps for CNF to be in CFG?

5. Explain Recursive enumerable language.

6. Explain Post's Correspondence Problem (PCP) in brief.

7. What is precedence rule? Explain.

8. Explain type 1 Grammer.

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