

S-724

Total Pages : 3

Roll No. -----

MCA-18

Formal Language and Automata

Master of Computer Application (MCA)

5th Semester, Examination 2022(Dec.)

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.

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 x 19 = 38]

P.T.O.

- Q.1. What is finite automation? Also explain States, Transitions and Finite-State Transition System.
- Q.2. What is Moore machine? What do you understand by equivalence of moore and mealy machines?
- Q.3. What is DPDA and DCFL? Explain their difference with suitable example.
- Q.4. For any $CFG^{(G=N, \Sigma, P, S)}$ there is a $CFG^{G' = (N', \Sigma', P', S')}$ in Chomsky normal form such that $L(G')=L(G)\{\epsilon\}$ explain?
- Q.5. Context Free Languages (CFLs) are not closed under intersection explain with the help of 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 x 8 = 32]

- Q.1. What do you understand by Languages and Theory of Computations? What is the most important feature of Automation?
- Q.2. What is Regular Expression explain with the help of example?
- Q.3. What is Pumping Lemma why it is used?
- Q.4. What is the basic model of Turing machine? Explain with the help of example?
- Q.5. Explain Recursive enumerable language.
- Q.6. Explain Post's Correspondence Problem (PCP) in brief.
- Q.7. What is sub-regular language?
- Q.8. What is recursive language? Explain.
