Important Questions for Mid-2
ATCD

UNIT-3

1. Design a Turing Machine to recognize the language $\{1^n2^n3^n / n \geq 1\}$. Specify its transition diagram and table. Show the moves of the TM for the input string 112233.

2. Design a TM for a set of all strings over $\{a,b\}$ with equal number of a's and b's. Specify its transition diagram and table. Show the moves of the TM for the input string ababba.

3. Design Turing machine to accept all set of palindromes over $\{0, 1\}^*$. And also write the transition diagram and Instantaneous description on the string 10101

4. Design a Turing Machine for recognizing $L = \{wcw \mid w \in \{a, b\}^*\}$. Draw its transition diagram and table. Using the instantaneous description notation process the string aabcaab

UNIT-4

5. What is a compiler? Describe the logical phases of a compiler with a neat sketch, and show the output of each phase, using the example of the following statement **position := initial + rate * 60**

6. Construct predictive parser for the following grammar

   S→(L)/a

   L → L,S/S

7. Construct LL(1) parsing table for the following grammar. Find the moves made by the LL(1) parser on the input string: **id+id*id**

   E → E+T/T

   T → T*F/F

   F→ (E)/id

UNIT-5

8. a) What is role of intermediate code generator in compilation process? Explain various forms of Intermediate codes used by compiler.

   b) Illustrate various loop optimization techniques with suitable examples

9. a) Translate the expression **-(a+b)*(c+d)+(a+b+c)** into the following

   i) Quadruples   ii) Triples   iii) Indirect triples

   b) Explain various methods to handle peephole optimization

10. a) Explain various methods of implementing three address statements with suitable examples.

    b) What is a basic block and flow graph? Explain how flow graph can be constructed for a given program.