https://www.kuonline.in

Roll No. ..... Total Pages : 3

MCS/M-20 **10556**

COMPILER DESIGN

Paper–MS-15-24

Time Allowed : 3 Hours] [Maximum Marks : 80

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Answer the following questions in brief :

   (a) What do you mean by single-pass compilers?

   (b) Design a finite automata for a language :

   $L = \{w : w \varepsilon (0,1)^* \&\& w$ has a substring 010$\}$.

   (c) What is a syntax tree?

   (d) Write short note on flow of control in a program.

   (e) What do you mean by register allocation schemes?

UNIT–I

2. What do you mean by multi-pass compilers? Explain their working using suitable examples.

https://www.kuonline.in

3. (a) What do you mean by a token? Explain with example and also show the use of DFA in identifying them.

   (b) Write a short note on LEX package.

UNIT–II

4. How does stack allocation scheme work for storage allocation of a program? Explain.

5. (a) What do you mean by three-address codes? Explain its representation using suitable examples.

   (b) What are different Run time storage allocation schemes? Discuss.

UNIT–III

6. (a) What is recursive descent parser? Parse the grammar $G = \{S \rightarrow aAc, A \rightarrow bc|b\}$ using it.

   (b) What do you mean by Canonical collection of LR(0) items? Explain their use in parsing.

7. (a) Differentiate between LALR and CLR parsers.

   (b) Write short note on YACC package.

https://www.kuonline.in

UNIT–IV

8. (a) What do you mean by the code improving transformations?

   (b) Show the generation of intermediate code for following programming statements declaration, assignment and expression.

9. Explain the following :

   (a) Loop invariant computation.

   (b) Strength reduction operator.