Code No.: CS601PC

R20   H.T.No. | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–II–Semester End Examinations (Supply) - January- 2024
COMPILER DESIGN
(Common for CSE, IT, CSC, CSD)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) Differentiate between compiler and interpreter
   b) What is the need for separating lexical analysis and syntax analysis?   [2M]
   c) Differentiate between Top down and Bottom up Parser.   [2M]
   d) Analyze and explain the problems in Top Down parsing   [2M]
   e) What are the evaluation orders for syntax directed definitions?   [2M]
   f) Differentiate between L attribute and S attribute   [2M]
   g) Construct a DAG for the following flow graph   [2M]
      d:=b+c   [2M]
      e:=a+b
      b:=b*c
      a:=e-d
   h) What is a basic block
   i) Discuss about Common Sub expression elimination   [2M]
   j) What is Strength reduction   [2M]
                                                                                 [2M]

PART-B   (50 Marks)

2. Explain various phases of compiler in detail.   [10M]
   OR
3. Explain about input buffering schemes in lexical analysis.   [10M]

4. (a) What do you mean by Ambiguous Grammar? Check whether the following grammar is   [10M]
   Ambiguous or not S→aAB, A→bC/cd, C→cd, B→c/d
   (b) . Eliminate the left recursion for the following grammer E-->E+T/T T-->T*F/F F-->(E)/id
   OR
5. Check whether the grammer is LALR(1) but not SLR(1) S-->Aa/bAc/dc/bda A-->d   [10M]

6. (a) Justify why all S-attributed definitions are L-attributed.
   (b) Explain the Type Checking with suitable examples?   [5M+5M]
   OR
7. (a) Describe the representation of 3-address code with an examples
   (b) Why quadruples are preferred over triples in optimizing compiler   [5M+5M]

8. What is activation record. Explain different fields in activation record.   [10M]
   OR
9. Explain the peephole optimization in detail.   [10M]

10. Explain principle sources of optimization in details.   [10M]
    OR
11. (a) Explain Loop optimization techniques in detail
    (b) Explain Partial Redundancy elimination in detail   [5+5M]

****