5E1752

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B.Tech. V-Sem. (Main & Back) Examination, January/February - 2024
Artificial Intelligence and Data Science
5AID4-02 Compiler Design
CS, IT, AID, CAI, CDS, CIT, CCS

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

*Attempt **all Ten** questions from **Part A**, **Five** questions out of **Seven** questions from **Part B** and **Three** questions out of **Five** questions from **Part C**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory. **(10×2=20)**

1. What is Translator.
2. Define Bootstrapping.
3. What is token.
4. Explain error handling.
5. Define paising.
6. What is syntax.
7. Define DAG.
8. What is ambiguity.
9. What is activation record.
10. Define optimization.

PART - B

(Analytical/Problem solving questions)

Attempt any Five questions. **(5×4=20)**

1. Classify the errors and discuss the errors in each phase of compiler.
2. What is symbol table? Write the procedure to store the names in symbol table.
3. Explain Bottom up paising in detail.
4. Explain Intermediate code forms using postfix notation.
5. Write short note on global data flow Analysis.
6. What is peehole optimization? Explain in detail.
7. Consider the grammer

   $E \rightarrow E+E$

   $E \rightarrow E*E$

   $E \rightarrow$ id

   Perform shift reduce paising of the input string "id1+id2+id3".

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions. **(3×10=30)**

1. Explain the paising techniques with a hierarchical diagram.
2. Discuss the phases of compiler with the help of appropriate diagram.
3. Construct syntax tree and postfix notation for the following expression

   $(a+(b*c)\hat{}\,d-e/(f+g))$.
4. What is common subexpression and how to eliminate it? Explain with the help of appropriate example.
5. Write short notes on
   a. YACC error handling in paising.
   b. Finite Automata lexical analyzer.