(6 pages) **Reg. No. :** .....

Code No. : 9921 **Sub. Code : HCAM 42**

M.C.A. (CBCS) DEGREE EXAMINATION,
APRIL 2015.

Fourth Semester

Computer Applications

PRINCIPLES OF COMPILER DESIGN

(For those who joined in July 2012 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The output of lexical analyser is
   (a) Set of regular expression
   (b) Set of tokens
   (c) Syntax tree
   (d) Strings of characters

2. Symbol table can be used for
   (a) Checking type compatibility
   (b) Storage allocation
   (c) Suppressing duplication of error message
   (d) All the above

3. Which of the following parser is most powerful?
   (a) Operator-precedence
   (b) Canonical LR
   (c) LALR
   (d) SLR

4. Semantic errors are occurred during
   (a) compile time
   (b) run time
   (c) both (a) and (b)
   (d) none of the above

5. A bottom up parser generates
   (a) Right most derivatives
   (b) Assignment statements
   (c) Input and output statements
   (d) Structural statements

6. CFG can be recognised as

(a) Finite automata

(b) Two way linear boundary automata

(c) Push down automata

(d) Both (b) and (c)

7. Backpatching is used for handling

(a) Conditional jumps

(b) Unconditional jumps

(c) Backward references

(d) Forward references

8. Ambiguous grammar has

(a) two or more productions have the same non terminal on the left hand side

(b) a derivation tree has more than one associated sentence

(c) there is a sentence with more than one derivation tree

(d) brackets are not present in the grammar

9. A basic block can be analysed by

(a) DAG (b) Flow graph

(c) Graph with cycle (d) None of the above

10. The last phase of compiler is ————————.

(a) code generation

(b) optimization

(c) syntax analyser

(d) semantic analyser

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b), each answer should not exceed 250 words.

11. (a) Mention some compiler construction tools.

Or

(b) Write a note on pre-processor.

12. (a) Differentiate Deterministic and Nondeterministic Finite Automata.

Or

(b) Briefly explain the role of the lexical analyzer.

13. (a) Give an example for context free grammar.

Or

(b) Write the action rules of shift reduce parser.

14. (a) Write a short note on back patching.

Or

(b) How nonlocal data are accessed on the stack?

15. (a) What are the primary structure preserving transformations on basic blocks?

Or

(b) Write the characteristics of peephole optimization.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b), each answer should not exceed 600 words.

16. (a) Explain in detail about the symbol table.

Or

(b) Discuss about the structure of a compiler.

17. (a) How do you design Lexical Analyser Generator?

Or

(b) Write briefly on the issues in input buffering. How they are handled?

18. (a) Explain in detail about top down parsing.

Or

(b) Define ambiguous grammar and specify its merits.

19. (a) Discuss about the run time storage management of a code generator.

Or

(b) What are the different types of three address codes? Explain in detail.

20. (a) Explain in the DAG representation of the basic block with example.

Or

(b) Explain machine independent optimization.

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