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

Code No. : 7417 **Sub. Code : KCAE 41**

M.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Computer Applications

Elective — PRINCIPLES OF COMPILER DESIGN

(For those who joined in July 2016 and afterwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Compiler is a

   (a) Translator (b) Interpreter

   (c) Operating system (d) None of these

2. Hierarchical analysis is also called as ————

   (a) Parsing (b) Syntax Analysis

   (c) Both (a) and (b) (d) None

3. ———— is a sequence of character that can be treated as a single logical entity.

   (a) Pattern (b) Lexeme

   (c) Token (d) None

4. A string obtained by removing zero or more trailing symbols of string S

   (a) Suffix of S (b) Prefix of S

   (c) Substring of S (d) None

5. Which one is Topdown parsing ————

   (a) Shift reduce parser

   (b) Operator precedence parsing

   (c) Recursive descent parser

   (d) None of the above

6. ———— is syntactic variables that denote set of strings.

   (a) Terminal (b) Non Terminal

   (c) Start symbol (d) None

7. ———— allocation lays out storage for all data objects at compile time.

   (a) Static (b) Stack

   (c) Heap (d) None

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8. In three address code, the statement, if x relop y goto L is ———— statement .

(a) Copy

(b) Assignment

(c) Unconditional Jump

(d) Conditional Jump

9. The instruction MOV R_5, M has cost ————

(a) One (b) Two

(c) Three (d) None

10. The ———— consists of the intermediate representation of the source program produced by the front end, together with information in the symbol table.

(a) Target program

(b) Instruction selection

(c) Memory management

(d) Input to the code generator

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) List out and explain the applications of compiler technology.

Or

(b) What is syntax directed translation?

12. (a) Write short note on specification of Token.

Or

(b) Expand and explain DFA.

13. (a) How do you eliminate left recursion?

Or

(b) Give a brief note on LR parsing.

14. (a) What are the different types of three address code available?

Or

(b) Write short note on stack allocation of space.

15. (a) What is peephole optimization?

Or

(b) Write short note Global Register Allocation.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What are the phases available in a compiler? Explain each one of them with neat diagram.

Or

(b) What is Lexical Analysis? Explain it in detail.

17. (a) Explain the technique input buffering in detail.

Or

(b) Construct the NFA from the regular expression (a/b)* abb using Thompson's construction algorithm.

18. (a) Consider the following grammar :

$S \rightarrow (L)/a$

$L \rightarrow L, S/S$

Construct predictive parsing table.

Or

(b) What is Bottom up passing? Explain shift reduce passing with suitable example.

19. (a) Explain the role of declaration statements in intermediate code generations.

Or

(b) Write short note on the following :

(i) Backpatching

(ii) Switch statements.

20. (a) Give a brief note on simple code generator.

Or

(b) What are basic blocks and flow graph? Give a brief note on each one of them.

———————

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