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**Reg. No. :**

**Question Paper Code: 46021**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

SixthSemester

Computer Science Engineering

14UCS601 – PRINCIPLES OF COMPILER DESIGN

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Compiler can check

 (a) Logical Error (b) Syntax Error

 (c) Both logical and syntax Error (d) Not logical and syntax Error

2. The lexical analyzer takes\_\_\_\_\_\_\_\_\_as input and produces a stream of\_\_\_\_\_\_\_as output

 (a) Source program, tokens (b) Token, source program

 (c) Either A and B (d) None of the above

3. YACC resolves conflicts by of type

 (a) Shift-Shift (b) Shift Reduce

 (c) RMS current decreases (d) A and B

4. Running time of a program depends on

 (a) The way the registers and addressing modes are used (b) The order in which computations are performed

 (c) the usage of machine idioms

 (d) All of these

5. Substitution of values for names whose values are constant, is done in

 (a) Local optimization (b) Local optimization

 (c) Constant folding (d) None of these

6. The \_\_\_\_\_\_\_\_ provides packet mode transfer for applications that exhibit traffic patterns

 such as frequent transmission of small volumes.

 (a) GSM (b) GPRS (c) UMTS (d) GGSN

7. The grammar S🡪CC , C🡪cC | d is

 (a) LL(1) (b) SLR(1) but not LL(1)

 (c) LALR(1) but not SLR(1) (d) LR(1) but not LALR(1)

8. In a bottom-up evaluation of a syntax directed definitions, inherited attributes can

 (a) Always be evaluated (b) Be evaluated only if the definition

 (c) be evaluated only if the definition has synthesized (d) Never be evaluated

9. M- Commerce stands for \_\_\_\_\_\_\_\_\_.

 (a) Multimode (b) Multi casting (c) Multi media (d) Mobile

10. Which languages necessarily need heap allocation in the runtime environment?

 (a) Those that support recursion

 (b) Those that use dynamic scoping

 (c) Those that allow dynamic data structure

 (d) Those that use global variables

 PART - B (5 x 2 = 10 Marks)

11. Depict diagrammatically how a language is processed.

12. Describe the role of lexical analyzer.

13. List the properties of LR parser.

14. Mention the two rules for type checking.

15. Give the important classes of local transformations on basic blocks.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain in detail the process of compilation. Illustrate the output of each phase of

 compilation for the input position=initial+rate \*10 (16) Or

 (b) (i)Mention any four compiler construction tools with their benefits and drawbacks. (10)

 (ii)Describe the need for grouping of phases of compiler (6)

17. (a) Obtain the minimized state DFA for the regular expression (a/b)\*abb using subset

 construction method. (16)

Or

 (b) (i) Write in detail about the role of Lexical analyzer with the possible error recovery

 actions. (8)

 (ii) Describe in detail the tool for generating lexical analyzer. (8)

18. (a) (i) Write the rule to eliminate the left recursion in a grammar. (4)

 (ii) Explain the closed loop speed control of CSI fed induction motor drives (12)

 S🡪iEtS/iEtSeS/a

 E🡪b

Or

(b) Construct the SLR parsing table for the following grammar. (16)

 S🡪L = R /R

 L🡪\*R / id

 R🡪 L

19. (a) Explain the Specification of simple type checker for statements, expressions and

 functions. (16) .

Or

(b) Discuss about the storage allocation strategies. (16)

20. (a) Explain briefly about the principal sources of optimization. (16)

Or

 (b) (i) Explain the various issues in the design of code generation . (12)

 (ii) Construct the DAG for the following basic block (4)

 d : = b \* c

 e : = a +b

 b : = b \* c

 a : = e – d