PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc(SS) DEGREE EXAMINATION MAY 2024
(Eighth Semester)

Branch -- **SOFTWARE SYSTEMS (five year integrated)**

PRINCIPLES OF COMPILER DESIGN

Time: Three Hours
Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions
ALL questions carry EQUAL marks
(10 x 1 = 10)

1) _____ or scanning is the process where the stream of characters making up the source program is read from left to right and grouped into tokens.
   i) Lexical   ii) Diversion   iii) Modeling   iv) Class

2) The table created by lexical analysis to describe all literals used in the source program is _____.
   i) Terminal table   ii) Literal table   iii) Identifier table   iv) Reductions

3) A bottom up parser generates_____.
   i) Right most derivation
   ii) Rightmost derivation in reverse
   iii) Leftmost derivation
   iv) Left most derivation in reverse

4) A grammar that produces more than one parse tree for some sentence is called_____.
   i) Ambiguous   ii) Unambiguous   iii) Regular   iv) Irregular

5) The linker_____.
   i) Is similar to interpreter
   ii) Uses source code as its input
   iii) Is required to create a load module
   iv) Reset module

6) Which of these is also known as look-head LR parser?
   i) SLR   ii) LR   iii) LLR   iv) VLR

7) The method which merges the bodies of two loops is_____.
   i) Loop rolling
   ii) Loop jamming
   iii) Constant folding
   iv) Constant jamming

8) Which table is a permanent database that has an entry for each terminal symbol?
   i) Terminal Table   ii) Literal Table   iii) Identifier Table   iv) Constant Table

9) Which loader function is accomplished by loader?
   i) Reallocation   ii) Allocation   iii) Linking   iv) Loading

10) Which of the following is used for grouping of characters into tokens?
    i) Parser
    ii) Code optimization
    iii) Code generator
    iv) Lexical analyzer

SECTION - B (25 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 5 = 25)

11) a) Analysis the difference between the linkers and loaders.
OR
b) Determine the types of compiler writing tools.

12) a) Explain the role of lexical analyzer.
OR
b) Illustrate the purpose of operator precedence parsing.

13) a) Show the constructing SLR parsing tables.
OR
b) Evaluate the LR1 sets of item construction.

14) a) Discuss the control flow translation of Boolean expressions.
OR
b) Assume the quadruples of three-address code with example.

15) a) State the simple code generator.
OR
b) Distinguish between the error detection and recovery.

SECTION -C (40 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 8 = 40)
Question No. 16 is Compulsory

16)   Analyze the different phases of compiler with diagram.

17) a) Demonstrate the minimizing the number of states of a deterministic finite automata.
OR
b) Enumerate the purpose of recursive descent parsing.

18) a) Elucidate the canonical collection of LR (0) items.
OR
b) Compare the CLR parser and LALR parser.

19) a) Assess the representing information in a symbol table.
OR
b) Evaluate the implementation of syntax directed translations.

20) a) Formulate the DAG representation of basic blocks.
OR
b) Outline the problems in code generation.

Z-Z-Z   END