PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(Fifth Semester)

Branch -SOFTWARE SYSTEMS
(Five year integrated)

PRINCIPLES OF COMPILER DESIGN

Time: Three Hours   Maximum: 75 Marks

SECTION -A (30 Marks!
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

1   a Explain in detail about the role of Lexical analyzer with diagram.
                              OR
    b Describe the compiler writing tools with examples.

2   a Elucidate the shift - reduce parsing technique with example.
                              OR
    b For the grammar given below, calculate the operator precedence relation and
        the precedence functions : E -»E + E j E - E j E * E j E j E j (E) | id

3   a What do you mean by syntax directed translation scheme? Explain with
        example.
                              OR
    b Describe the method of translating Boolean expression with example.

4   a Elucidate the basic blocks and flow graphs with example.
                              OR
    b Illustrate peephole optimization techniques with suitable examples.

5   a How do you optimize the basic blocks? Discuss.
                              OR
    b Explain the different storage allocation strategies.

SECTION -B (45 Marks)
Answer any **THREE** questions
ALL questions carry **EQUAL** Marks (3 x 1 5 = 45)

6   What are the phases of the compiler? Explain the phases in detail. Write
        down the output of each phase for the expression a : = b + c * 50.

7   Construct the SLR Parsing for the following grammar :
         $E' E$
         E —» E + T|T
         T -> T * FlF

8   Illustrate intermediate code generation with examples.