PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA **DEGREE EXAMINATION MAY** 2018
(First Semester)

Branch - **COMPUTER APPLICATIONS**

COMPUTER ORGANISATION & ARCHITECTURE

Time: Three Hours , Maximum: 75 Marks

SECTION -A (30 Marks!
Answer ALL questions
ALL questions carry EQUAL Marks $(5 \times 6 = 30)$

1 a State the various basic logic gates and its graphic symbol, algebraic function and truth table.

OR

  b Obtain the Some Of Products (SOP) expression for the following logic functions and draw the logic gates :
(i) Y (A, B) = A + B (ii) Y (A. B. C) = A + BC

2 a Explain working principle of Bus and Memory transfers with block diagram and its function table.

OR

  b Write note on Shift Micro Operations and its Hardware Implementation.

3 a Explain common bus system of computer register.

OR

  b Illustrate with an example of the basic computer instructions and formats.

4 a Outline the parallel processing with multiple functional units.

OR

  b List and explain three possible data transfer modes under modes of transfer.

5 a Demonstrate the memory hierarchy in a computer system.

OR

  b State and explain the characteristics of multiprocessors.

SECTION -B (45 Marks)
Answer any **THREE** questions
ALL questions carry **EQUAL** Marks $(3 \times 15 = 45)$

6 For the given Boolean function F = x + y'z
  a i) List the truth table of the function
    ii) Draw the logic diagram for original Boolean expression
    iii) Simplify the algebraic expression using Boolean algebra

  b Obtain the Standard POS expression and draw the logic diagram for the following expression : Y = (A + B')(B + C)(A + C').

7 Discuss various arithmetic micro operations with suitable example.

8 Explain various input-output and interrupt with example.

9 Discuss vector processing with simple examples.

10 Illustrate interprocessor arbitration with diagrams.

Z-Z-Z END