14CAP03

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **COMPUTER APPLICATIONS**

COMPUTER ORGANIZATION AND ARUCHITECTURE

Time: Three Hours Maximum: 75 Marks

SECTION -A (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

1 a Illustrate the working principle of basic logic gates through its truth table.

OR

b Discuss Boolean Algebra and its laws.

2 a Describe register transfer micro operation with its timing diagram.

OR

b Examine the three types of shift micro operations with example.

3 a Discuss about different types of computer instructions.

OR

b Draw a logic diagram for accumulator logic and explain its association with registers & memory unit.

4 a Write a note on instruction pipeline.

OR

b Describe the array processing.

5 a Explain the mapping procedure of virtual memory.

OR

b Illustrate the working principle of daisy chain arbitration technique.

SECTION -B (45 Marks)

Answer any **THREE** questions

ALL questions carry **EQUAL** Marks (3 x 15 — 45)

6 Simplify the Boolean function :
F(A, B, C, D)= ^ (0,1,3,4,5,7,12,13,15) using K-map
Implement using NAND gate only.

7 Expound Arithmetic micro operations with neat diagram.

8 Describe the process of executing an instruction with timing diagram.

9 Explicate the two asynchronous data transfer operations in a computer system.

10 Appraise the pros and cons of various interconnection structure of processors.

Z-Z-Z END