Hall Ticket Number:

Code No. : 310.´6 O

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
M.C.A. (CBCS) I-Semester Backlog Examinations, January-2018

Computer Organization

Time: **3 hours**

Max. Marks: **70**

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Determine by means of truth table the validity of DeMorgan's theorem for three variables $(ABC)^1 = A^1 + B^1 + C^1$.

2. Draw 4-bit synchronous binary counter.

3. Explain about Three-State Bus Buffers.

4. Illustrate the need for Accumulator.

5. Define   a) Microprogram   b) Micro-operation.

6. "A computer is not just a calculator but also a symbol manipulator", Justify.

7. List any four addressing modes where effective address is obtained by computation.

8. Write the steps in division algorithm.

9. Compare isolated I/O and memory-mapped I/O.

10. Draw the memory hierarchy in a computer system.

Part-B (5 × 10 = 50 Marks)

11. a) Illustrate the working of a 4-to-1 line multiplexer using figure and function table. [5]

    b) Explain different ways of integer representation. [5]

12. a) Discuss the working of a 4-bit binary adder using a figure. [4]

    b) Write and explain the steps involved in an Interrupt Cycle, using flowchart. [6]

13. a) Illustrate the need for program interrupt. [5]

    b) Explain how the mapping from instruction code to a microinstruction address can be done by means of a read only memory. [5]

14. a) How are branch instructions handled in a pipeline? [5]

    b) Draw and explain one stage of a decimal arithmetic unit that can add or subtract two BCD digits. [5]

15. a) Write about associative mapping and direct mapping in cache memory [5]

    b) Explain Daisy-Chaining Priority, using a figure. [5]

16. a) State the different types of flip-flops. Explain using truth tables. [5]

    b) Explain Instruction cycle with the help of a Flow Chart. [5]

17. Answer any *two* of the following:
    a) Discuss the working of the Microprogram Sequencer [5]
    b) Explain various addressing modes with an example [5]
    c) Discuss Direct Memory Access in detail. [5]

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