



C09-CM-304

3230

**BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2014
DCM—THIRD SEMESTER EXAMINATION**

DIGITAL ELECTRONICS AND COMPUTER ARCHITECTURE

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State De Morgan's laws.
2. Draw the symbols and truth tables for the following gates :
 - (a) AND
 - (b) OR
3. Draw NAND latch and write its truth table.
4. Draw mod-8 ripple counter.
5. Write the applications of a demultiplexer.
6. Define macro operation.
7. Explain zero-address instruction with an example.

- * 8. Define op code and operand.
9. What is meant by virtual memory?
10. Define polling.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Draw and explain a 4-bit parallel binary adder.
12. Explain the principle of operation of Schmitt trigger circuit.
13. Draw and explain the working of shift right register.
14. Describe the sequential execution of a program stored in memory by CPU.
15. Describe any five addressing modes.
16. Explain the source initiated data transfer using handshaking procedure.
17. (a) Draw a 3-bit asynchronous UP/DOWN counter.
(b) Explain the 4 1 multiplexer with diagram.
- * 18. (a) Explain the fixed point representation of numbers with example.
(b) What is meant by memory hierarchy? State its need.
