



C09-CM-304

3230

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

DCM—THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND COMPUTER ARCHITECTURE

Time : 3 hours]

[*Total Marks* : 80

PART—A

Instructions : (1) Answer **all** questions.

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

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Explain the working of EX-OR gate with truth table.
2. Draw half-adder circuit using an exclusive OR and an AND gate.
3. Define positive and negative logic levels.
4. State the applications of counter.
5. Draw the circuit diagram of a multiplexer.
6. Define stored program concept.
7. Define operand, opcode and address.
8. List the different addressing modes.
9. Explain the principle of memory interleaving in a computer.
10. List the various peripheral devices that can be connected to a computer.

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PART—B

- 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.** Explain the operation of a digital comparator circuit for two 4-bit words.
- 12.** Explain with block diagram, waveform and truth table the working of *J-K* flip-flop.
- 13.** Draw and explain module-5 ripple counter.
- 14.** (a) Explain the transfer of data between register.
(b) Illustrate the application of demultiplexer with a circuit diagram.
- 15.** (a) Define the terms—Microoperation and Macrooperation.
(b) Describe the sequential execution of a program stored in memory by the CPU.
- 16.** Explain zero-address, one-address, two-address and three-address instructions with simple examples.
- 17.** (a) Explain fixed point multiplication with flowchart.
(b) Explain the principle of virtual memory organization in a computer system.
- 18.** (a) Explain programmed I/O method of data transfer.
(b) Define a bus. Name few bus systems.

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