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Total No. of Questions: 07

Total No. of Pages: 02

**Bachelor of Computer Application (Sem. 3)**

**DIGITAL CIRCUITS & LOGIC DESIGN**

**Subject Code: BSBC-303**

**Paper ID: B0230**

Time: 3 Hrs.

Max. Marks: 60

**INSTRUCTIONS TO CANDIDATES:**

1. Section A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. Section B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

**SECTION A**

1. Write briefly:
  - a) Define bit , byte and nibble.
  - b) Convert the following number to decimal:
    1.  $(1001.1001)_2$
    2.  $(110011001001)_2$
  - c) What do you mean by weighted code? Give example.
  - d) Briefly discuss NOR gate and XOR gate.
  - e) Compare Static and Dynamic RAM.
  - f) Give the significance of Priority encoder.
  - g) Simplify the Boolean function:
$$F = x'yz + x'yz' + xy'z' + xy'z$$
  - h) What is universal shift register?
  - i) Discuss the design of Asynchronous counters.
  - j) Write short note on D Flip-flop.

## SECTION B

2. Discuss in detail
  - a) Full Subtractor
  - b) Parallel Binary Adder
3. Explain the working of R-S flip-flop in detail.
4. Write short note on:
  - a) Up-down Counters
  - b) MOD-N Counters
5. Define a Demultiplexer. Show how to convert a decoder into a Demultiplexer.
6. Discuss various types of Logic Gates. Also Discuss their applications.
7. Write short note on:
  - a) Removing Race Condition
  - b) Simplification of Boolean expression using K-Maps