

**Roll No.**

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**Total No. of Pages : 02**

**Total No. of Questions : 07**

**BCA (Sem.-1)**  
**COMPUTER ARCHITECTURE**

**Subject Code : UGCC-2502**

**M.Code : 95413**

**Date of Examination : 02-01-2026**

**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 :**

- Define a logic gate.
- What is the difference between AND gate and OR gate?
- What is Boolean algebra?
- Define K-map.
- What is a multiplexer?
- Define flip-flop.
- What is the difference between a combinational and a sequential circuit?
- What is RISC?
- Define memory reference instruction.
- What is the purpose of the data bus?

## **SECTION - B**

2. Explain with neat diagrams how NAND and NOR gates act as universal gates? Implement basic logic operations using only NAND gates.
3. Write a detailed note on Simplification of Boolean Expression using K-Maps.
4. **Write a detailed note on following :**
  - a) Half Adder
  - b) Full Subtractor
5. Explain in detail about Encoders and Decoders.
6. Explain the construction and working of T flip-flop. Also, discuss applications of flip-flops in digital systems.
7. Explain in detail about Von Neumann and Harvard architectures with neat diagrams.

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**