

Dr. Babasaheb Ambedkar Open University
Term End Examination July – 2026

Course	: BSCIT	Date	: 23/07/2026
Subject Code	: BSCITRMA-403	Time	: 03:00pm to 05:15pm
Subject Name	: Digital Electronics	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Discuss Hardware, Software and Von Neumann Architecture with neat diagram.
2. Explain various Number Systems. Describe Binary, Octal, Decimal and Hexadecimal number systems with examples.
3. Discuss AND, OR, NOT, NAND and NOR gates with truth tables.
4. Discuss Main Memory, Cache Memory, Auxiliary Memory and Virtual Memory.
5. Discuss Stack Organization, Addressing Modes and Program Interrupts.

Section B

Answer the following (Attempt any four) (20)

1. Explain Analog Signal and Digital Signal. Differentiate between them.
2. Discuss 1's Complement and 2's Complement methods with suitable examples.
3. Explain Excess-3 Code and Gray Code.
4. Write a short note on Registers and Shift Registers.
5. Explain Binary Adder and Binary Adder-Subtractor.
6. Discuss Input-Output Organization and DMA.

Section C

Part – A (Multiple Choice Questions) (10)

1. A bit can have:
A) Four values B) Three values
C) Two values (0 or 1) D) Eight values
2. Which number system has base 16?
A) Binary B) Octal
C) Decimal D) Hexadecimal
3. Which complement is obtained by changing all 0s to 1s and all 1s to 0s?
A) 2's Complement B) 9's Complement
C) 1's Complement D) 10's Complement
4. Excess-3 code is:
A) Weighted code B) Non-weighted code
C) Alphanumeric code D) Error detecting code
5. Which gate is known as an inverter?
A) OR Gate B) NAND Gate
C) XOR Gate D) NOT Gate
6. Which gate produces output 1 only when all inputs are 1?
A) OR Gate B) AND Gate
C) NOR Gate D) XOR Gate

7. RAM stands for:

- A) Random Access Memory B) Read Access Memory
- C) Rapid Access Memory D) Register Access Memory

8. Which component performs arithmetic and logical operations?

- A) Memory Unit B) Input Unit
- C) ALU D) Output Unit

9. DMA stands for:

- A) Direct Memory Access B) Data Memory Access
- C) Direct Module Access D) Data Module Architecture

10. Cache Memory is used to:

- A) Increase processing speed B) Store permanent data
- C) Store backup files D) Replace RAM

Part – B (State whether the following statements are true or false)

(10)

- 1 A byte consists of 8 bits.
- 2 Digital signals are continuous in nature.
- 3 Binary number system has base 2.
- 4 Gray Code is a weighted code.
- 5 ASCII is an alphanumeric code.
- 6 NAND gate is a universal gate.
- 7 Registers are used for temporary storage of data.
- 8 RAM is a volatile memory.
- 9 CPU contains ALU and Control Unit.
- 10 DMA allows data transfer without continuous CPU intervention.
