

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

Course	: BSCCS	Date	: 22/07/2026
Subject Code	: BSCCS-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 Computer Organization and Von Neumann Architecture.
2. Discuss Binary, Decimal, Octal and Hexadecimal Number Systems with suitable examples.
3. Explain Logic Gates and Boolean Algebra in detail.
4. Discuss Multiplexer and Registers.
5. Discuss Main Memory, Auxiliary Memory, Cache Memory and Virtual Memory.

Section B

Answer the following (Attempt any four) (20)

1. Differentiate between Analog Signals and Digital Signals.
2. Explain 1's Complement and 2's Complement with suitable examples.
3. Discuss Binary Codes, BCD Code, Excess-3 Code and Gray Code.
4. Explain RAM, ROM and different types of ROM.
5. Explain Encoder and Decoder.
6. Explain DMA and Program Interrupt.

Section C

Part – A (Multiple Choice Questions) (10)

1. A digital computer processes information using:
A) Decimal digits only B) Binary digits
C) Analog signals only D) Hexadecimal digits only
2. One byte consists of:
A) 4 bits B) 8 bits
C) 16 bits D) 32 bits
3. Which architecture is based on the stored-program concept?
A) Harvard Architecture B) Distributed Architecture
C) Von Neumann Architecture D) Client-Server Architecture
4. Which number system has base 8?
A) Binary B) Decimal
C) Octal D) Hexadecimal
5. Which complement is obtained by adding 1 to the 1's complement?
A) 8's Complement B) 9's Complement
C) 2's Complement D) 10's Complement
6. Which gate is known as a universal gate?
A) AND Gate B) OR Gate
C) XOR Gate D) NAND Gate

7. Which device converts multiple input lines into fewer output lines?

- A) Decoder
- B) Encoder
- C) Multiplexer
- D) Register

8. RAM is:

- A) Non-volatile Memory
- B) Secondary Memory
- C) Volatile Memory
- D) Optical Memory

9. RTL stands for:

- A) Register Transfer Language
- B) Real Time Logic
- C) Register Translation Logic
- D) Runtime Transfer Language

10. DMA stands for:

- A) Dynamic Memory Access
- B) Data Memory Allocation
- C) Direct Module Access
- D) Direct Memory Access

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

(10)

- 1 Digital signals contain discrete values.
- 2 Binary Number System uses base 2.
- 3 Von Neumann Architecture separates data memory and instruction memory.
- 4 1's Complement is obtained by interchanging 0s and 1s.
- 5 NAND gate is a universal gate.
- 6 ROM is a volatile memory.
- 7 Excess-3 is a self-complementing code.
- 8 Registers are used for temporary storage inside a computer.
- 9 DMA allows data transfer without continuous CPU intervention.
- 10 Cache Memory improves system performance.
