

(NO. OF PAGES: 2)

(FOR THE CANDIDATES ADMITTED

SUBJECT CODE | 25 UBC 205

DURING THE ACADEMIC YEAR 2025-26 ONLY)

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY- 2026

B.C.A.

MAXIMUM MARKS: 75

II SEMESTER

TIME : 3 HOURS

PART – III

DIGITAL COMPUTER FUNDAMENTALS

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

- Which complement is commonly used in digital systems for subtraction?
 - 1's complement
 - 9's complement
 - 10's complement
 - 2's complement
- Which memory is non-volatile?
 - RAM
 - Cache
 - ROM
 - Register
- A multiplexer is also known as.....
 - Data distributor
 - Code converter
 - Data selector
 - Comparator
- Which flip-flop is known as a universal flip-flop?
 - SR flip-flop
 - D flip-flop
 - JK flip-flop
 - T flip-flop
- OCR is used to.....
 - Recognize spoken words
 - Recognize printed characters
 - Print characters
 - Encode data

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.

(K2)

6. What is throughput?
7. What is a Boolean function?
8. Define a half adder.
9. Define a shift register.
10. What is a terminal?

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K3)

11. a) Explain logic and flowcharting and list out all the flowchart symbols.

(OR)

12. a) Outline basic theorems and properties of Boolean Algebra.
b) Describe the complements used in number systems.

(OR)

- b) Outline the different digital logic gates.

(CONTD 2)

13. a) Explain half adder and full adder with truth tables.
(OR)
b) Illustrate the symbols multilevel NAND and NOR circuits.
14. a) Write various types of flip-flops.
(OR)
b) List the use of ripple counters.
15. a) How punched tape and tape readers stores data? Explain.
(OR)
b) List the steps involved in error detecting and correcting codes.

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Explain program specification, input, output, and throughput.
(OR)
b) Classify the various types number systems and base conversions used in digital computers.
17. a) Outline the fundamental theorems and properties of Boolean Algebra, its axioms, and basic theorems.
(OR)
b) Explain semiconductor memory in detail.
18. a) Demonstrate the process of subtractor circuits with examples.
(OR)
b) Explain multiplexers and demultiplexers with Block diagrams.
19. a) Outline the fundamental principles registers and memory units.
(OR)
b) Explain timing sequence in sequential circuits.
20. a) Describe the operations of character recognition devices: MICR and OCR.
(OR)
b) Classify various types of output devices.