

**(FOR THE CANDIDATES ADMITTED  
DURING THE ACADEMIC YEAR 2022 ONLY)**

**22UBC205**

**REG.NO. :**

<b>N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI</b>	<b>END-OF-SEMESTER EXAMINATIONS : MAY-2023</b>
<b>COURSE NAME: B.C.A</b>	<b>MAXIMUM MARKS: 50</b>
<b>SEMESTER: II</b>	<b>TIME : 3 HOURS</b>

**PART - III**

**DIGITAL COMPUTER FUNDAMENTALS**

**SECTION – A** **(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

**MULTIPLE CHOICE QUESTIONS.** **(K1)**

1. \_\_\_\_\_ are solid lines with arrowheads which indicate the flow of operation.  
a) Flowlines      b) Processing      c) Connectors      d) Terminal
2. What are the canonical forms of Boolean Expressions?  
a) OR and XOR      b) NOR and XNOR  
c) MAX and MIN      d) SOM and POM
3. Designing combinational circuit involves \_\_\_\_\_  
a) 4 steps      b) 6 steps      c) 5 steps      d) 8 steps
4. When both inputs of a J-K flip-flop cycle, the output will \_\_\_\_\_  
a) Be invalid      b) Change      c) Not change      d) Toggle
5. In MICR, C stands for \_\_\_\_\_.  
a) Code      b) Colour      c) Computer      d) Character

**ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES. (K2)**

6. Define Number system.
7. What is the purpose of digital logic gates?
8. Define encoders.
9. Recall register.
10. What is the meaning of punched tape?

**SECTION – B** **(5 X 3 = 15 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)**

11. a) How do you write a program specification?  
**(OR)**
- b) Convert  $(306.D)_{16}$  to Binary.

**(CONTD .... 2)**

12.a) Construct the axiomatic definition of Boolean Algebra.  
**(OR)**

b) Explain the following  
i) ROM ii) RAM iii) PROM iv) EPROM

13. a) Compare multilevel NAND and NOR circuit.  
**(OR)**

b) Outline the binary parallel adder.

14. a) How to set time using ripple counter? Explain.  
**(OR)**

b) Explain Ripple counter with truth table.

15. a) Elaborate on tape cassettes & cartridges.  
**(OR)**

b) What type of memory is floppy disk? How is it used?

**SECTION – C (5 X 5 = 25 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K4 (Or) K5)**

16. a) Examine in detail flow chart symbols with an example.  
**(OR)**

b) Convert the following:  
i)  $(10110001101011.11110010)_2$  to Hexadecimal  
ii)  $(2500)_{10}$  to Hexadecimal

17. a) Using Boolean algebra techniques, simplify this expression:  $AB + A(B + C) + B(B + C)$   
**(OR)**

b) Convert the following Boolean expression into standard POS form:  $(A + B + C)(B + C + D)(A + B + C + D)$

18. a) Discuss briefly the Full adder with the truth table and circuit  
**(OR)**

b) Compare the difference between Multiplexer and Demultiplexer

19. a) Summarize in detail about shift registers with neat diagram.  
**(OR)**

b) Analyze the synchronous binary counter with neat diagram.

20. a) Summarise the various input devices of computer with an example.  
**(OR)**

b) Categorize the various types of error detection methods.

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