Set-1

MORADABAD INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering

Sessional Test – 1

Course: B.Tech. **Semester: 3rd**

Session: 2025-2026 **Section: A, B, C, D**

Subject Name: DSTL **Subject Code: BCS303**

Max. Marks: 20 **Time: 60 min**

Q. No.	1	2	3	4	5	6
CO	1	1	2	1	2	3
Bloom's Cognitive Level	K3	K3	K3	K3	K3	K3

Section(A)

Attempt all questions.

Q1. Show that for any two sets A and B: $(A \cup B)' = A' \cap B'$ using the method of mutual subsets. **(2 marks)**

Q2. If R is a relation on the set of integers defined by $R = \{(x, y): (x \cong y) mod\ m\}$, where $\cong$ denotes congruence modulo m, then prove that R is an equivalence relation. **(3 marks)**

Q3. Let A and B be two sets. If $f: A \to B$ is one-to-one and onto, prove that $f^{-1}: B \to A$ is also one-to-one and onto. **(3 marks)**

Section(B)

Attempt all questions. Each question carries 4 marks. **(3*4=12)**

Q4. Show that D_{64}, denoting the set of divisors of 64 ordered by divisibility, forms a lattice $(D_{64}, /)$.

Q5(i). Solve the following Boolean function using a K-map:

$$F(A, B, C, D) = \sum (0,1,2,5,7,8,9,10,13,15).$$

(ii). Also, express the following Boolean expression in conjunctive normal form:

$$(x + y + z)(xy + x' z)'$$

Q6(i). Show that $\left((p \vee q) \wedge (p' \wedge (q' \vee r'))'\right) \vee (p' \wedge q') \vee (p' \vee r)$ is a tautology.

(ii) Show that the statements $P \leftrightarrow Q$ and $(P \wedge Q) \vee (\sim P \wedge \sim Q)$ are equivalent.

MORADABAD INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SESSIONAL TEST -1st

Course: B.Tech. Semester: 3rd Session: 2025-26
Subject: Computer Organization & Architecture
Max. Marks: 20

Section: A, B, C, D, I, J
Subject Code: BCS-302
Time: 1 hr 15 min.

Q.No. :	1	2	3	4	5	6
CO No.:	1	2	1	2	1	1
Bloom's Level	2	3	2	3	3	2

Note:
1. **This paper contains two section A and B.**
2. **All sections are compulsory.**

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SECTION- A

Q1. Discuss the role of ALU in a processor? **2 marks**

Q2. Perform single and double precision IEEE standard floating-point number representation for $(-1460.125)_{10}$. **3 marks**

Q3. Explain Bus Arbitration and its types. **3 marks**

SECTION- B

Q4. Show the multiplication process step by step using Booth's Algorithm for **(-19) * (+20).**

OR

Divide **39 by 17** using Binary Division Algorithm also draw the flowchart of Division Algorithm. **4 marks**

Q5. Convert the following numerical arithmetic expression into reverse polish notation and show the stack operations for evaluating the numerical result.

$$(3+4)\,[10(2+6)+8]$$

Write the PUSH and POP operation of stack. **4 marks**

Q6. Explain General Register Organisation with proper diagram. Also define control word and write control word for following microoperation.

a. $R5 \leftarrow 0$
b. $Output \leftarrow Input$

4 marks

ALL THE BEST

MORADABAD INSTITUTE OF TECHNOLOGY

CT I Cyber Security BCC301 2nd year Session 25-26

CSE Section A/B/C Max. Marks 20 Duration 60 Mins

Q.No	1	2	3	4	5	6	7
CO	I	I	I	II	I	II	II
Blooms Level	2	2	2	2	2	2	2

CO1: Understand the basic concepts of cyber security and cybercrimes.

CO2: Understanding the challenges posed by mobile devices and applying remedial measures to overcome them.

SET 2

Part A

Attempt all questions from all parts.

1. Elaborate what do you mean by Cybercrime? [2]
2. Explain any 3 survival mantras for netizens? [2]
3. Elaborate various cybercrime classifications? [2]
4. Explain any 3 mobile devices? [2]

Part B

5. Explain with a diagram what is a botnet? [4]
6. Elaborate on the security challenges posed by mobile devices? [4]
7. Explain any 3 trends in mobile? [4]

Section A/B →Mr. Vikas Bhatnagar (B-104/ Control Room) Section C Mr. Varun Agarwal (C-304)

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Moradabad Institute of Technology
CT- 1

Session – 2025-26
Subject – Technical Communication
Max. Marks – 20

Section – A,B,C,D
Subject Code- BAS-301
Time – 1:00 Hr.

Q. No.	1	2	3	4	5	6
C.O	1	2	2	1	1	3
Bloom's Level	2	2	3	2	2	2

Note- 1. This paper contains three sections (A) and (B)
2. Both Sections are compulsory

SECTION A

1. Explain the concept of stimulus and response in the communication process. 2
2. Describe the interview process and explain various types of interviews. 3
3. Discuss the essential dos and don'ts to be followed during a Group Discussion. 3

SECTION B

4. Explain the seven C's of effective communication with suitable illustrations. 4
5. Identify major barriers to effective communication and suggest practical strategies to overcome them. 4
6. What do you understand by Project Report Writing with its elements and structure? 4

Anjana
08/10/25

MORADABAD INSTITUTE OF TECHNOLOGY
COMPUTER SCIENCE & ENGINEERING
CLASS TEST-1 (3rd SEMESTER)
Session 2025-26

Subject: Digital Electronics | **Sub Code: BOE310**
MM: 20 | **Duration: 1 HR**
Branch: CSE | **Sec: A, B, C**

Q.NO.	1	2	3	4	5	6
CO	1	1	1	3	2	2
Bloom's Level	K1	K2	K2	K3	K6	K6

CO1: Apply concepts of Digital Binary System and implementation of Gates.
CO2: Analyze and design of Combinational logic circuits
CO3: Analyze and design of Sequential logic circuits with their applications.

Note: 1) **This paper contains two sections A and B.**
2) **All sections are compulsory.**

Section A (08 Marks)

1. Represent the unsigned decimal numbers 791 and 658 in BCD, and then show the steps necessary to form their sum. [2]
2. (i) Convert $(A5D8)_{16}$ into BCD number. [3×1=3]
   (ii) Convert $(46)_{10}$ to Gray Code.
   (iii) Represent **−37** in **8-bit 2's complement.**
3. Simplify using **K-map** and implement with **NAND gates**:
   $F(A, B, C, D) = \Sigma m(0,1,2,5,8,9,10,13)$ [3]

Section B (12 Marks)

4. Derive the characteristic equation of SR flip flop with block diagram. [4]
5. Design a full adder by half adder and obtain the required expression for sum and carry. [4]
6. Design a combinational circuit that converts a four-bit binary number to a four-bit gray code. [4]

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Moradabad Institute of Technology
Computer Science & Engineering and Allied
Class Test-1
Session: 2025-26

Subject Name: Data Structure
Subject Code: BCS301
Branch: CSE, AIML, DS, IOT
Year: 2nd

MM: 20
Duration: 1hr
Section: A, B, C, D, I, J
Sem: 3rd

Q. No	1	2	3	4	5	6
CO	CO1	CO2	CO1	CO1	CO2	CO3
Bloom's Level	K2	K3	K3	K3	K3	K3

CO1	Implement and explain how arrays and linked lists are represented in memory, used by the algorithms and their common applications.
CO2	Implement and use linear data structures stacks and queues in computer science applications.
CO3	Implement the concept of recursion, application of recursion and removal of recursion.

Note:
This paper contains two sections (A) and (B). All sections are compulsory.

Section (A) **Attempt all questions.**		**Marks**
1)	Explain Linear and Non-Linear Data Structure with example.	**(2)**
2)	Explain stack. Write C function for push and pop operations. Assume stack is stored in array.	**(3)**
3)	Write a C function to insert an element at the end of a doubly linked list.	**(3)**
Section (B) **Attempt all questions.**		
4)	Consider the following multidimensional array, X [-2:3, 1:3, 0:6]. a). Find the length of each dimension b). Find number of elements in X. c). Find the address of element X [3, 2, 4] if X is stored in row major. Assume Base(X) = 200, w = 4.	**(4)**
5).	Write an algorithm to convert infix expression to postfix. Convert the following infix expression to Postfix form using stack: A + (B*C/E*F + G^H*I) + J*K	**(4)**
6).	Explain recursion. Write a recursive function to find the factorial of any number. Explain the limitations of recursion?	**(4)**