

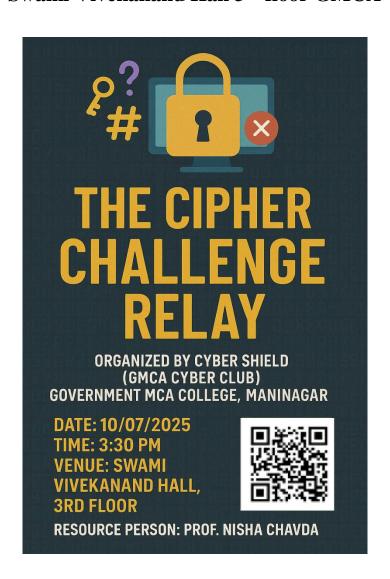
GOVERNMENT MCA COLLEGE -569

K.K.SHASTRI EDUCATIONAL CAMPUS, KHOKHARA, MANINAGAR (EAST),AHMEDABAD-380008

A Report on

The Cipher Challenge relay game session

On 10/07/2025, Thursday Swami Vivekanand Hall 3rd floor GMCA



Details about Session:

Date: 10/07/2025

Day: Thursday

Time: 03:30 PM - 05:30PM

Location: Swami Vivekananda Hall, 3rd floor, GMCA

Faculty Members: Prof Nisha Chavda

No. of Students: 42

Organized by: Cyber Shield (A GMCA Cyber Club)

Cyber Shield (A GMCA Cyber Club) had organized an interactive game session related to cryptography skills on 10th July, 2025 at the institute for the students of semester 3, MCA department. The event was planned and executed by Prof Nisha Chavda.

Learning Objectives:

- To understand the basic mechanics of common simple ciphers.
- To practice decryption techniques for different cipher types.
- To develop teamwork and communication skills under time pressure.
- To conceptually grasp the difference between substitution and transposition.

About The Cipher Challenge Relay game:

Target Audience: MCA semester 3 students (Groups of 3 students)

Duration: 02 Hours

Concepts Covered: Substitution Ciphers (Caesar, Atbash, Simple Keyword), Transposition

Ciphers (Simple Rail Fence)

Materials Needed (Per Group of 3):

• A4 size Blank paper: 3 sheets per group

• **Pens/Pencils:** 3 per group

• "Cipher Toolkit" handout: 1 per group

Game Flow & Instructions

Round 1: Substitution Cipher Decryption Race (30 minutes)

- **Objective:** Decrypt a message encrypted with a straightforward substitution cipher.
- **Action:** Each of the groups got their unique "Round 1 Message" slips from pre-prepared envelopes/folders.
- **Cipher Types:** Each of the messages used a different Caesar shift, or an Atbash, or a very short, simple Keyword Substitution.

- o Example Messages:
 - Group 1 (Caesar +5): XYZI DHWI QJFWQ RTWS (Plaintext: STUDY HARD LEARN MORE)
 - Group 2 (Atbash): XIBKGLTIZKSB RH UFM (Plaintext: CRYPTOGRAPHY IS FUN)
 - Group 3 (Caesar -8): FWKPMXQC BW XQG (Plaintext: JOURNAL IS FUN)
 - Group 4 (Keyword "LION"): LIDZOB PFE MFB (Plaintext: SIMPLE YET FUN)
 - ... and so on.

• Team Role:

- o "Code Breaker": Focuses on trying different shifts (for Caesar) or mapping (for Atbash/Keyword), using the Toolkit.
- o **"Pattern Finder":** Looks for common letters (E, T, A, O, I, N in English) or short words to identify potential patterns.
- "Scribe/Verifier": Writes down potential plaintexts on scratch paper and then
 the final answer on the whiteboard, double-checking for readability and
 correctness.

Round 2: Cipher Identification & Decryption (30 minutes)

- **Objective:** Identify the cipher type (either substitution or simple transposition) and then decrypt the message.
- **Action:** Each of the groups got their unique "Round 2 Message" slips from pre-prepared envelopes/folders.

• Cipher Types:

- o **Simple Rail Fence (2 Rails):** These are visually distinct once understood.
- o **Slightly more complex Substitution:** Longer Keyword ciphers
 - Group 1 (Rail Fence, 2 Rails): KWEDGSPWRNOLIE (Plaintext: KNOWLEDGE IS POWER)
 - Group 2 (Keyword "LID"): LGFB ZI DHEB FGGBB (Plaintext: CODE IS VERY HARD)
 - Group 3 (Rail Fence, 2 Rails): IHLAAMNAUGEVIG (Plaintext: I AM GUJARAT VILLAGE)
 - Group 4 (Caesar +13): GUR PYNFF VF BIRE (Plaintext: THE CLASS IS OVER) and so on.

• Team Role Suggestion:

- o "Analyst": Tries to determine if it's substitution (frequency analysis, common digraphs) or transposition (looks for scrambled patterns, tries rail fence layout).
- "Method Tester": Actively tries out decryption methods based on the analyst's hypotheses.
- o "Communicator/Recorder": Articulates ideas, records progress on scratch paper, and manages the whiteboard.

After each round 1st team to solve the message secured 15 marks and next team got 1 mark less than them and so on for all groups. Finally the team with highest toal marks of both challenges won the game.

Winners:

Wiining team: Team no.11

- Yadav Satyam
- Harsh Panchal
- Nirmal Vaghasiya

Runner up team: Team no.03

- Rupesh Kushwaha
- Devansh Gajjar
- Mahin Vithani

Event Photographs:











