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Lab Final Examination – Summer 2026
Course Code: CIS311L (Batch 20B)
Course Title: Network Security and Cryptography Lab
Set: **B** Date: 16.08.2026

Time: 1 Hour Total Marks: 2 x 20 = 40

[Select any **ONE** question from each part and answer it.]

Write the program using either Python or JavaScript. Include the appropriate output for each program.

Part 1:

a. Write a program that processes the string **"Password Security"** and performs a **bitwise OR** operation on each character using the key value **117**. For each character, convert it to its ASCII value, display the ASCII value in binary format, perform the **OR** operation, and display the **OR** result in decimal, hexadecimal, and character format.

b. Implement the **AES-192** symmetric encryption algorithm in **CBC mode**. The program should encrypt the plaintext **"Secure File Storage"**. Decrypt the ciphertext using the same key and IV, and display the plaintext, generated key, key size, ciphertext, and decrypted plaintext.

Part 2:

a. Implement the SHA-512 hashing algorithm to generate the hash of the plaintext **"Integrity Verification Through Hashing"** using both the complete message and the message divided into multiple **(5 chunks)** parts. Display the original plaintext, both generated hash values, the length of each hash, and compare the outputs to verify that both approaches produce the same hash.

b. Write a program that takes the plaintext **"Information Security"** and the key **47** as input. Encrypt the plaintext using the Caesar Cipher algorithm, then decrypt the generated ciphertext using the same key. Display the original plaintext, ciphertext, ciphertext length, and decrypted plaintext.

Important Instructions:

- Create a folder on Desktop and rename it using your **Student ID_Set** *(e.g., 242-16-046_SetB)*. **Please follow this format strictly.**
- Save all your source code files inside this folder.
- In each source code file, include your Student ID as a comment at the beginning of the file.