COURSE CODE (CREDITS): 24B11CI312 (3)   MAX. MARKS: 35

COURSE NAME: Information and Cyber Security Foundation

COURSE INSTRUCTORS: Mr. Aayush Sharma   MAX. TIME: 2 Hours
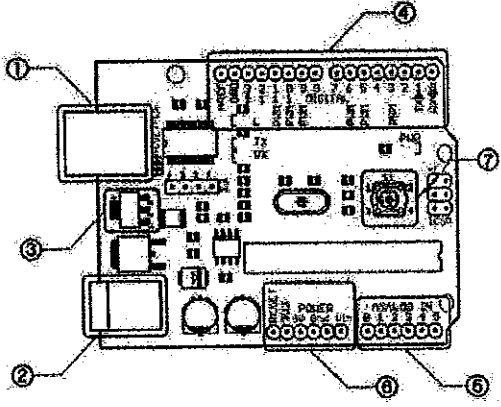
Note:(a)All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required

for solving problems

Q.No	Questions	CO	Marks
Q1	Your task is to identify possible personal information about an individual using publicly available sources. Assume you have a name and a LinkedIn profile of a professional working in the IT sector. Explain your approach to gather: 1. Their recent activities or events they might have attended. 2. Details about their hobbies or interests outside of work. 3. Provide steps, tools, or techniques you would use, and discuss ethical considerations while performing this task.	[CO-6]	[2+2+2]

Q2	**A)** Given the following image carefully label the parts [1-7] of Arduino uno:
	
	B) Based on the following code and sketch for arduino. Identify the operation it is performing:
	//Code
	const String correctPassword = "1234";
	String attempt = "";
	int attempts = 0;
	void setup() {
	Serial.begin(9600);
	Serial.println("Starting brute-force simulation...");
	}
	void loop() {
	if (attempts > 9999) {
	Serial.println("All possible combinations tried. System locked.");
	while (true);
	}
	// Generate the next PIN attempt
	attempt = String(attempts);
	while (attempt.length() < 4) {
	attempt = "0" + attempt;
		[CO-5]	[3+3]

	``
	        }
	        Serial.print("Trying PIN: ");
	        Serial.println(attempt);
	        if (attempt == correctPassword) {
	          Serial.println("PIN Matched! System Unlocked.");
	          while (true);
	        }
	        attempts++;
	        delay(100);
	      }
	``		

Q3	Answer the following:
	  1. A message, **"SECURITY"**, is encrypted using a Caesar Cipher with a shift of 7. What is the encrypted message?
	  2. Using the keyword **"CYBER"**, create a substitution cipher for the English alphabet. Then, encrypt the plaintext **"ATTACK"** using the created cipher.
		[CO-4]	[3+3]

Q4	Answer the following:
	  1. You are asked to search for sensitive files (e.g., .pdf, .docx) inadvertently made publicly accessible on the client's website example.com. Write a Google Dork query that could help you locate such files and explain how it works.
	  2. Explain how Burp Suite can help identify **insecure input handling** in a login form. Suggest one test you would perform using Burp Suite to exploit this vulnerability.
		[CO-3]
		[CO-1]
		[CO-2]
			[3+3]

Q5	You are working as a malware analyst and encounter a suspicious file on a client's system. The file exhibits behavior such as replicating itself across multiple files and folders, spreading to other systems on the same network without user interaction, and causing the system to run slowly due to excessive resource consumption. Based on this behavior, classify the malware as a **Virus, Worm, Trojan, or Ransomware**, explaining your reasoning.	[CO-3]	[5]

Q6	A) The following code contains what kind of vulnerability and how can you exploit it give step by step explanation:
	
	``c
	#include <stdio.h>
	#include <string.h>
	void vulnerable_function(char *input) {
	    char buffer[64];
	    printf("Processing your input...\n");
	    strcpy(buffer, input);
	    printf("Your input was: %s\n", buffer);
	}
	int main(int argc, char *argv[]) {
	    if (argc != 2) {
	        printf("Usage: %s <input>\n", argv[0]);
	        return 1;
	    }
	    printf("Welcome to the vulnerable program!\n");
	    vulnerable_function(argv[1]);
	    printf("Thank you for using the program!\n");
	    return 0;
	}
	``
	
	B) Given a program you want to change or modify values saved in memory using cheat engine how would you go about doing it give step by step approach if you want to change:
	  1. A integer value which can be changed based on your inputs.
	  2. A unknown float value which can be increased or decreased based on your inputs.
		[CO-3]	[3+3]