THINGS TO KNOW:

1. **Lab report must contain following sections: (order must be maintained)**
   a) **Title /Question**
   b) **Theory: The brief overview of the concept /techniques/syntax/technology used in the program**
   c) **Code: The complete code**
   d) **Output: Screenshot of the output**
2. **Output screen should be captured (use snipping tool), printed and attached in the report. Other contents can be handwritten or printed.**
3. **Every source code must include the printing statements to print following information after your main output:**

   Lab No.:

   Name:

   Roll No./Section :

4. **Contents should be written/printed on single side of A4 sized paper.**
5. **The works must be submitted within specified deadline.**
6. **Cover page and index page should be attached in the report appropriately.**

<u>Index Page Format (can be printed)</u>

List of Lab Works

Lab No.	**Title /Question**	**Submission Date**	**Signature**	**Remarks**
1(a)	This is sample	2079/11/12		
1(b)	This is also sample	2078/11/12		

Recommendation for self – study (required for doing Lab works in AI)

Students are recommended to study all the topics and concepts given in syllabus. They are **highly recommended to learn following concepts, language features and technologies:**

- Setting environments for coding in **Python** (install **Anaconda Navigator** or other alternatives)
- Basic language features of Python including ***conditional statements, loops, function, recursion, array, string, list, dictionary, tuple, set, class, object, constructor***, etc.)
- Idea to handle ***data structures like stack, queue, priority queue, etc. in Python***.
- Basic idea about **NLTK** library in Python.
- Setting environments for coding in **Prolog (**install **GNU Prolog** or other alternatives and text editors like **NotePad++, Sublime Text**, etc.)
- Basic Idea About Prolog Language (What/ When/ Who/ Why)
- Ideas about ***Atoms, Variables, Facts, Rules and recursion in Prolog***

(Remaining Lab –works / (part-2) / AI -CSIT-4th)

10. Implementing Frame (Recommended Language: C++ with use object pointers / Python Object oriented)

    "Ram is a person living in Nepal. He was born on 15th December of year 1990. He is 6 inch tall and has 75 kg weight. He has a job. He works at 'ABC company' as AI Researcher and earns 1.5 lakhs per month. The company is situated at Kathmandu."

    Represent above information in frames diagrammatically and also implement it using the concepts of class in C++.
11. Prolog Basic
    a. About Language (What/ When/ Who/ Why)
    b. Atoms, Variables, Facts and Rules in Prolog
12. Ancestor program using Prolog.
13. Family relationship (family tree) program using prolog.
14. Represent following facts in Semantic Net diagrammatically and also write a program in Prolog to represent the Semantic Net.
    - Mat1 is a mat
    - Cat1 is a cat
    - Tom is a cat.
    - Bird1 is a bird.
    - Cat1 sat on Mat1.
    - Tom caught bird1.
    - Tom is owned by John.
    - Tom is ginger in color.
    - Cats like cream.
    - The cat sat on the mat.
    - A cat is a mammal.
    - A bird is an animal.
    - All mammals are animals.
    - Mammals have fur.

15. Write a program to demonstrate the working of Naive Bayse classifier by taking a suitable example problem.
16. WAP to develop a sample medical expert system capable of diagnosing disease based on the provided symptoms. (Recommended Language : Prolog or Python)
17. Realization of AND, OR and NOT gates using Artificial Neurons (Recommended Language : Python)
18. A Simple Example of Back Propagation Learning (Recommended Language : Python)
19. WAP to solve N Queen Problem.(Recommended Language : Python)
    (Problem: To find an arrangement of N queens on a chess board of size N×N, such that no queen can attack any other queens on the board).
20. WAP to solve Water Jug Problem. (Recommended Language : Python)
    (Problem statement: Given two jugs, a 4-gallon and 3-gallon having no measuring markers on them. There is a pump that can be used to fill the jugs with water and the water can be poured on the ground. How can you get exactly 2 gallons of water into 4-gallon jug?
21. Write a program to demonstrate the steps in genetic algorithm taking suitable example problem.
22. WAP to demonstrate some NLP tasks using NLTK. (Recommended Language : Python)
    [Sentence tokenization, Word tokenization, stop words filtering, word stemming, POS tagging, etc.]