Task 1: What is AI? (300-word note)

What is AI?

Artificial Intelligence (AI) refers to the ability of machines or computer systems to mimic human intelligence to perform tasks such as learning, reasoning, problem-solving, and understanding language. AI systems are designed to think, learn from experience, and adapt to new information or changes in their environment.

Types of AI:

1. Narrow AI (Weak AI): AI designed for a specific task. Examples include voice assistants like Siri and Alexa, or recommendation systems on YouTube and Netflix.

2. General AI (Strong AI): AI with the ability to understand, learn, and apply intelligence across a wide range of tasks like a human.

3. Super AI: A theoretical AI that surpasses human intelligence in every aspect.

Real-world Applications of AI:

Healthcare: AI is used for disease diagnosis, drug discovery, and robotic surgeries.

Finance: Fraud detection, algorithmic trading, and credit scoring use AI.

E-commerce: Recommendation systems and chatbots are AI-powered tools used to improve customer experience.

Transportation: Self-driving cars use AI to make driving decisions based on surroundings.

Agriculture: AI helps monitor crops, predict weather, and automate irrigation systems.

Education: Personalized learning systems adapt to students' learning patterns using AI.

Manufacturing: AI-powered robots and machines assist in production and maintenance.

In conclusion, AI is transforming how we interact with technology and how industries operate. From simplifying everyday tasks to solving complex global problems, AI has become a vital part of our present and future.

✅ Task 3: Python program for student details using if-else and loops

```
students = []

# Input student details
num_students = int(input("Enter number of students: "))
```

```
for i in range(num_students):
    name = input(f"Enter name of student {i+1}: ")
    marks = float(input(f"Enter marks of {name}: "))
    students.append((name, marks))

# Display results with condition
for name, marks in students:
    print(f"\nStudent Name: {name}")
    print(f"Marks: {marks}")
    if marks >= 50:
        print("Result: Pass")
    else:
        print("Result: Fail")
```

✅ Task 4: Rule-based chatbot using if-else

```
print("Welcome to Simple Chatbot! Type 'exit' to end.")

while True:
    user_input = input("You: ").lower()

    if user_input == "exit":
        print("Bot: Goodbye!")
```

```
        break
    elif "hello" in user_input:
        print("Bot: Hi there! How can I help you?")
    elif "your name" in user_input:
        print("Bot: I am a simple chatbot.")
    elif "how are you" in user_input:
        print("Bot: I'm just a bunch of code, but thanks for asking!")
    else:
        print("Bot: Sorry, I didn’t understand that.")
```

✅ Task 5: Python math program using functions

```
def add(a, b):
    return a + b

def subtract(a, b):
    return a - b

def multiply(a, b):
    return a * b

def divide(a, b):
    return a / b if b != 0 else "Cannot divide by zero"
```

```
print("Select operation: +, -, *, /")
op = input("Enter operator: ")

num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))

if op == '+':
    print("Result:", add(num1, num2))
elif op == '-':
    print("Result:", subtract(num1, num2))
elif op == '*':
    print("Result:", multiply(num1, num2))
elif op == '/':
    print("Result:", divide(num1, num2))
else:
    print("Invalid operator.")
```