1. **System Design with Sensors** (5 marks) Design a home automation system using both *temperature sensors* and *proximity sensors (e.g., IR sensors)*. Your design should explain how each sensor interacts with a microcontroller to automate tasks such as adjusting the air conditioning and turning on lights when someone enters a room. Discuss the role of signal conditioning and sensor accuracy in your system.

2. **Microcontroller Application in Smart Agriculture** (5 marks) Propose a smart agriculture system that uses a *32-bit microcontroller* and a combination of *ultrasonic sensors* and *humidity sensors* to monitor soil conditions and automate irrigation. Explain how each sensor's data is processed by the microcontroller to make decisions. Justify why a 32-bit microcontroller would be preferable in this scenario, considering data handling and precision.