## Develop automated test cases for the three case studies:

## 1.3.1 An insulin pump control system

|  |
| --- |
| **Test 1: Embedded micro sensor** |
| **Input:**   1. Sensor reading. 2. Some blood parameter 3. Sugar level   **Tests:**   1. Sensor raw data should be converted or preprocessed 2. Get blood sugar level 3. Ensure sending of the parameter values to the pump controller 4. Ensure sensors are active and running   **Output:** OK or error message indicating failure of operation for particular input. |

|  |
| --- |
| **Test 2: Pump Controller** |
| **Input:**   1. Blood sugar level of patient   **Tests:**   1. Check computation of correct sugar level 2. Check computation of the amount of insulin. 3. Check if insulin level is out of range 4. Check given insulin frequency   **Output:** OK or error message indicating failure of operation for particular input. |

## 1.3.2 A patient information system for mental health care

|  |
| --- |
| **Test 1: Check communication** |
| **Input:**  1.Client PC request  2.Server communication  3.Database response  **Tests:**   1. Check if centralized database can be accessed from a PC 2. Check secured network connectivity 3. Ensure local copies of information in case of power failure.   **Output:** OK or error message indicating failure of operation for particular input. |

|  |
| --- |
| **Test 2: Safety of information checking** |
| **Input:**  1.User name & password  2.information entering, deleting, updating  3.Information accessing.  **Tests:**   1. Require systems to allow individual access to their personal records. 2. Require all data that is maintained on an individual to be relevant for the purpose for which it is maintained. 3. The records of patients who have a history of deliberate self-harm shall be highlighted in some way to bring them to the attention of clinical system users 4. To provide medical staff with timely information to facilitate the treatment of patients.   **Output:** OK or error message indicating failure of operation for particular input. |

|  |
| --- |
| **Test 3: Authenticity** |
| **Input:**  1.User name & password  2. Information accessing.  **Tests:**   1. Require systems to check login activity 2. Require all data that is maintained on an individual to be relevant for the purpose for which it is maintained. 3. Check staff who logs in with their unique id and employee number. 4. The system should ensure privacy of patient information and never disclose information to anyone other than the authorized medical staffs. 5. To provide medical staff with timely information to facilitate the treatment of patients.   **Output:** OK or error message indicating failure of operation for particular input. |

## A wilderness weather station

|  |
| --- |
| **Test 1: report Weather** |
| **Input:**  1.Sensor reading.  2.Some parameter  3.Time  **Tests:**   1. **S**ensor raw data should be converted or preprocessed 2. Get timestamp 3. Ensure sending of the parameter values to the database system 4. Ensure sensors are active and running   **Output:** OK or error message indicating failure of operation for particular input. |

|  |
| --- |
| **Test 2: Calibration** |
| **Input:**  1. connectivity  **Tests:**   1. initial data processing on the raw sensor reading. 2. Ensure communication between the sub-systems 3. proper transferring of information by satellite.   **Output:** OK or error message indicating failure of operation for particular input. |

|  |
| --- |
| **Test 3: System error report** |
| **Tests:**   1. check the process that includes acquiring, validating, storing weather parameters. 2. Ensure communication between the sub-systems 3. Check proper transferring of information by satellite. 4. Check data collection 5. Check for any system failure   **Output:** OK or error message indicating failure of operation for particular input. |