# Test Suit for Ticketing System

## ✅ 1. User Component

### User Registration

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| UC-001 | Register with valid details | Name, Email, Password | User registered successfully |
| UC-002 | Register with missing fields | Missing Email | Validation error |
| UC-003 | Register with existing email | Existing Email | Duplicate error |

### Login

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| UC-004 | Login with correct credentials | Email, Password | Authenticated, token generated |
| UC-005 | Login with incorrect password | Valid Email, Wrong Password | Authentication failed |

## ✅ 2. Authentication & Authorization Component

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| AU-001 | Access secured endpoint with valid token | Valid Token | Access granted |
| AU-002 | Access with invalid token | Invalid Token | 401 Unauthorized |
| AU-003 | Role-based access control | Customer accessing admin endpoint | 403 Forbidden |

## ✅ 3. Ticket Component

### Create Ticket

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| TC-001 | Create ticket with valid data | Title, Description | Ticket created |
| TC-002 | Create ticket with missing title | No Title | Validation error |

### Assign Ticket

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| TC-003 | Assign to valid agent | Ticket ID, Agent ID | Ticket assigned |
| TC-004 | Assign to non-existent user | Invalid Agent ID | Error |

### Update Ticket Status

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| TC-005 | Mark as in progress | Ticket ID | Status updated to IN\_PROGRESS |
| TC-006 | Close ticket without resolution | Ticket ID | Business rule violation |

## ✅ 4. Notification Component

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| NC-001 | Send email on ticket creation | Ticket Created Event | Email sent |
| NC-002 | Send notification on assignment | Ticket Assigned Event | Notification delivered |
| NC-003 | Retry on failure | Downstream email service | Retry triggered (Camel DLQ if failed repeatedly) |

## ✅ 5. Kafka Event Processing (Camel Routes)

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| KC-001 | Publish ticket.created event | New Ticket | Event published to Kafka |
| KC-002 | Consume ticket.assigned | Kafka Message | Ticket status updated |
| KC-003 | Handle invalid event structure | Corrupted Payload | Logged, skipped, moved to DLQ |

## ✅ 6. System Integration & API Gateway

| **Test Case ID** | **Description** | **Input** | **Expected Result** |
| --- | --- | --- | --- |
| SI-001 | API Gateway routes to user-service | API call | Response from user-service |
| SI-002 | Unauthorized user access API | No token | 401 Unauthorized |
| SI-003 | Rate-limiting enforcement | 100+ API calls | Throttled or 429 response |