Based on the provided predicates and placeholders, I will instantiate the generic pattern into a specific safety case for a GPCA system for a scenario involving the operational hazard "infusion pump failure" under "hospital environment scenario". I will replace the placeholders with specific details and organize the safety case into a hierarchical tree format with dashes to indicate levels.

### Instantiated Safety Case for GPCA System

\*\*Level 1\*\*

- \*\*G1\*\*: Operational safety is verified in GPCA system

\*\*Level 2\*\*

- \*\*S1\*\*: Argument over the satisfaction of all specs over GPCA system

- \*\*C1\*\*: All specs are given by GPCA\_Spec.allInstances()

- \*\*G2\*\*: All operational hazards are mitigated

- \*\*S2\*\*: Argument over reliability in all suitable levels of GPCA system

- \*\*C2\*\*: Operational hazards are given by operational\_hazard.allInstances()

\*\*Level 3\*\*

- \*\*S3\*\*: Argument over operational hazards

\*\*Level 4\*\*

- \*\*G3\*\*: Infusion pump failure is mitigated

\*\*Level 5\*\*

- \*\*S4\*\*: Argument over the applied scenarios of infusion pump failure

- \*\*C3\*\*: All related scenarios are given by operational\_hazard

\*\*Level 6\*\*

- \*\*G4\*\*: Infusion pump failure is mitigated under hospital environment scenario

\*\*Level 7\*\*

- \*\*S5\*\*: Argument over all specs related to hospital environment scenario

- \*\*C4\*\*: All related specs are given by scenario.spec.allinstances()

\*\*Level 8\*\*

- \*\*G5\*\*: Hospital environment specification is appropriate for hospital environment scenario

\*\*Level 9\*\*

- \*\*S6\*\*: Argument the appropriateness of hospital environment specification over properties

- \*\*C5\*\*: Properties are given by spec.property.allinstances()

\*\*Level 10\*\*

- \*\*G6\*\*: Property is appropriate for hospital environment specification

\*\*Level 11\*\*

- \*\*S7\*\*: Argument over the source of the property definition

- \*\*C6\*\*: Source is given by property.source

\*\*Level 12\*\*

- \*\*G7\*\*: Source is appropriate and trustworthy

- \*\*Sn1\*\*: source

- \*\*G8\*\*: Property definition is sufficient

- \*\*Sn2\*\*: property

To summarize the hierarchy tree:

```plaintext

- G1: Operational safety is verified in GPCA system

- S1: Argument over the satisfaction of all specs over GPCA system

- C1: All specs are given by GPCA\_Spec.allInstances()

- G2: All operational hazards are mitigated

- S2: Argument over reliability in all suitable levels of GPCA system

- C2: Operational hazards are given by operational\_hazard.allInstances()

- S3: Argument over operational hazards

- G3: Infusion pump failure is mitigated

- S4: Argument over the applied scenarios of infusion pump failure

- C3: All related scenarios are given by operational\_hazard

- G4: Infusion pump failure is mitigated under hospital environment scenario

- S5: Argument over all specs related to hospital environment scenario

- C4: All related specs are given by scenario.spec.allinstances()

- G5: Hospital environment specification is appropriate for hospital environment scenario

- S6: Argument the appropriateness of hospital environment specification over properties

- C5: Properties are given by spec.property.allinstances()

- G6: Property is appropriate for hospital environment specification

- S7: Argument over the source of the property definition

- C6: Source is given by property.source

- G7: Source is appropriate and trustworthy

- Sn1: source

- G8: Property definition is sufficient

- Sn2: property

```

This hierarchical structure provides a clear and detailed argument structure for the safety case of a General-Purpose Compute Appliance (GPCA) system, focusing on mitigating infusion pump failure within a hospital environment scenario.