Here’s the **comprehensive, sentence-by-sentence breakdown** of your **Personal Safety** document, rewritten into structured, professional **CompTIA A+ 220-1102 study notes**. All details are preserved, and the formatting is designed for easy pasting into Word.

**Personal Safety – Study Notes**

**1. Topic Overview**  
Personal safety refers to the practices technicians must follow to avoid injury and hazards while working. Risks include electrocution, tripping, improper lifting, fire hazards, airborne particles, and unsafe cleanup methods. Safety requires awareness of best practices, protective equipment, and proper procedures.

**2. Preventing Electrocution**

* Always **disconnect power** before working on any device.
* For laptops: unplug from wall and remove the battery.
* For desktops/servers: shut down and unplug the power cord.
* Reason: ensures all electricity is drained to prevent accidental shock when replacing or installing components.

**3. Avoiding Trip Hazards**

* Trip hazards occur when objects or cables are left in walkways.
* Examples:
  + Placing a computer in the middle of a walkway while servicing it.
  + Running a cable across a room to a desk.
* Solutions:
  + Run cables along walls, under raised floors, or above ceilings.
  + Keep work areas clear of equipment in walking paths.

**4. Proper Lifting Techniques**

* Improper lifting is a common cause of technician injuries.
* Technique:
  + Lift with **knees, not back**.
  + Feet shoulder-width apart, bend at knees, keep back straight.
  + Lift smoothly upward with legs.
  + Squat to lower the object safely.
* Weight guidelines:
  + Over 25 lbs = use proper squat technique.
  + Over 50 lbs = use a **team lift** with another person.
* Use **carts with wheels** to transport heavy items long distances.
* Note: Equipment like servers and UPS battery backups may be deceptively small but extremely heavy (some exceed 150 lbs).

**5. Electrical Fire Safety**

* Common issue: “daisy chaining” surge protectors (plugging one into another).
  + Creates overheating and fire risks due to current overload.
* Rules:
  + Only one surge protector per wall outlet.
  + Use correctly rated cables and cords.
* If an electrical fire occurs:
  + Safely remove power (trip breaker or unplug surge protector if safe).
  + If fire continues, use a **Class C extinguisher (CO₂-based gas extinguisher)** to remove oxygen and extinguish flames.

**6. Personal Protective Equipment (PPE)**

* **Goggles:** Protect eyes from flying debris, toner, or dust.
* **Masks:** Protect lungs from inhaling fine particulates (dust, toner).
* **Gloves:** Protect skin from chemicals, toner, and corrosive substances.
* Always wear appropriate PPE when cleaning, using compressed air, or handling chemicals.

**7. Safe Cleaning Procedures**

* **Dust inside computers:**
  + Best method: Use a **PC-safe vacuum** (specialized motor prevents ESD).
  + Procedure: Power down, unplug, open case, vacuum inside.
  + For hard-to-reach dust: take the machine outside and use compressed air with goggles and mask.
* **Toner spills:**
  + Use a **toner-safe vacuum** (fine filtration for toner particles).
  + Never use a household vacuum (cannot filter toner, risk of airborne dust and ESD).
  + Small spills: clean with a **damp cloth**, since toner is a fine plastic powder that clings to moisture.

**8. Summary of Best Practices**

* Disconnect power before working on devices.
* Eliminate trip hazards by rerouting cables and equipment.
* Use proper lifting (knees, not back) and carts for heavy transport.
* Avoid daisy chaining surge protectors to prevent fire.
* Use PPE (goggles, masks, gloves) when working with chemicals, dust, or toner.
* Use PC-safe and toner-safe vacuums for cleaning, never household vacuums.
* For dust removal: vacuum first, compressed air second (preferably outdoors).

**Real-Life Implementation Example**  
Scenario: A technician is tasked with replacing a UPS battery in a server room. The battery weighs over 100 lbs. Instead of lifting it alone, the technician uses a **team lift** with a coworker. They wear **gloves** to prevent chemical exposure from any leaking cells. After installation, the technician notices dust buildup inside nearby servers. They shut them down, unplug, and use a **PC-safe vacuum** to clean the dust, then finish by carefully wiping toner residue on the floor with a **damp cloth**. This ensures safety, compliance, and equipment protection.

**Exam Inclusion Notification**  
Yes, personal safety is explicitly included in the **CompTIA A+ 220-1102 exam objectives** under **“Safety and Environmental Impacts”**. The exam requires knowledge of:

* Preventing electrocution.
* Avoiding trip hazards.
* Proper lifting and team lifts.
* Fire safety (outlet limits, daisy chaining risks, fire extinguisher use).
* PPE requirements (goggles, masks, gloves).
* Correct cleanup procedures (PC-safe vacuums, toner-safe vacuums, compressed air).