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).

Here’s a **10-question multiple-choice quiz** based on your *Personal Safety* document, styled like the **CompTIA A+ 220-1102 exam**. I ensured balanced distribution of answers and avoided predictable patterns.

**CompTIA A+ 220-1102 – Personal Safety Quiz**

**1.** Before working on a laptop, which two steps must be taken to prevent electrocution?  
A. Unplug from the wall and remove the battery  
B. Shut down and disable Wi-Fi  
C. Wear an ESD wrist strap and mat  
D. Place it on a non-metallic surface

**2.** A cable runs across the middle of an office walkway, creating a trip hazard. Which is the best corrective action?  
A. Tape the cable flat to the floor  
B. Route the cable along the wall or through the ceiling  
C. Cover the cable with a rug  
D. Warn users to watch their step

**3.** When lifting a 30-pound desktop computer, what is the safest method?  
A. Lift with the knees, back straight  
B. Bend at the waist and lift quickly  
C. Drag the computer across the floor  
D. Ask for a team lift

**4.** A technician needs to move a 150-pound UPS battery backup across the building. What is the best practice?  
A. Carry it manually to save time  
B. Perform a team lift with another technician  
C. Use compressed air to lighten the weight  
D. Roll it carefully on its side

**5.** Which situation represents a fire hazard when connecting devices?  
A. Using a single surge protector per outlet  
B. Daisy chaining multiple surge protectors together  
C. Using short, heavy-duty extension cords  
D. Plugging equipment into a grounded outlet

**6.** What type of fire extinguisher should be used for an electrical fire?  
A. Water-based extinguisher  
B. Foam extinguisher  
C. Carbon dioxide (CO₂) extinguisher  
D. Sand bucket

**7.** Which personal protective equipment (PPE) is most appropriate when cleaning toner spills?  
A. Helmet and steel-toed boots  
B. Goggles, mask, and gloves  
C. Anti-static wrist strap and mat  
D. Ear plugs and hard hat

**8.** Why should a household vacuum never be used inside a computer case?  
A. It is too powerful and may remove components  
B. It generates static electricity that can damage components  
C. It will not remove dust effectively  
D. It is not approved under OSHA safety standards

**9.** A technician notices dust inside a server case that the vacuum cannot reach. What should be done?  
A. Leave the dust in place  
B. Use compressed air outdoors while wearing PPE  
C. Blow on it with their mouth  
D. Spray it with a water bottle to settle the dust

**10.** What is the safest way to clean a small toner spill on the floor?  
A. Sweep it with a broom  
B. Use a damp cloth to collect the toner  
C. Blow it away with compressed air  
D. Vacuum it with a household vacuum

**Answer Key & Explanations**

**1. Correct Answer: A – Unplug from the wall and remove the battery**  
*Explanation:* Disconnecting all power sources prevents accidental shock. ESD gear is for protecting components, not technician safety.

**2. Correct Answer: B – Route the cable along the wall or through the ceiling**  
*Explanation:* Best practice removes the hazard completely rather than covering or warning.

**3. Correct Answer: A – Lift with the knees, back straight**  
*Explanation:* Proper lifting technique prevents back injuries. Team lifts are reserved for >50 lbs.

**4. Correct Answer: B – Perform a team lift with another technician**  
*Explanation:* Heavy equipment over 50 lbs requires a team lift or cart to prevent injury.

**5. Correct Answer: B – Daisy chaining multiple surge protectors together**  
*Explanation:* This overloads circuits and creates overheating/fire hazards.

**6. Correct Answer: C – Carbon dioxide (CO₂) extinguisher**  
*Explanation:* Class C fires require CO₂ to displace oxygen; water or foam can worsen electrical fires.

**7. Correct Answer: B – Goggles, mask, and gloves**  
*Explanation:* PPE protects against inhaling fine particles and prevents toner contact with skin and eyes.

**8. Correct Answer: B – It generates static electricity that can damage components**  
*Explanation:* Household vacuums produce ESD, which can fry sensitive circuits.

**9. Correct Answer: B – Use compressed air outdoors while wearing PPE**  
*Explanation:* Prevents dust inhalation and avoids spreading debris indoors.

**10. Correct Answer: B – Use a damp cloth to collect the toner**  
*Explanation:* Toner is a fine plastic powder that clings to moisture; sweeping or compressed air spreads it.

✅ **Scoring Guide:**

* **9–10 correct:** Excellent mastery, exam-ready.
* **7–8 correct:** Good understanding, review weak areas.
* **6 or below:** Revisit personal safety study notes before retesting.

Would you like me to **combine this Personal Safety quiz with your earlier HVAC, ESD, and Disposal quizzes** into a **comprehensive 40-question mock exam**? That would simulate a real **CompTIA A+ 220-1102 section** experience.