

- 1) Explain the different categories of **fire extinguishers**. In your explanation which one should a computer technician use if a PC/monitor catches on fire.
  - a. Class A: Puts out fires in ordinary combustibles such as wood and paper
  - b. Class B: For use on flammable liquids like grease, gasoline and oil
  - c. Class C: For use only on electrically energized fires
  - d. Class D: For use on flammable metals
  - e. Class F: For use on fats and cooking oils
  - f. A computer technician should use a Class C fire extinguisher, since PC/monitor fires are usually caused by short-circuits or other failures in the computer components which are caused by electricity.
- 2) Explain the importance of **back safety**. What should you do and no do. Are there any government laws, that controls what we can lift and not lift.
  - a. Back and neck pain, headaches, and shoulder and arm pain are common computer-related injuries. Muscle and joint problems can be caused or made worse by poor workstation design, bad posture and sitting for long periods of time. While sitting, sit up straight on the chair, and stretch/exercise occasionally. The Occupation and Safety Health Act was created to regulate interstate commerce. Part of it allows the secretary of labor to put forward and enforce safety standards. Employers are required to carry out a risk assessment before asking employees to perform any type of heavy lifting or manual holding.
- 3) Explain **uninterruptible power supply (UPS)** units that a SOHO could use. How does it differ from a surge protector
  - a. An uninterruptible power supply (UPS) unit is a battery in a box with enough capacity to power devices that are plugged in for hours, depending on the battery capacity. It also doubles as a surge protector. It keeps devices powered during power outages, which is useful if you don't want to lose your work during a power outage, or if you run the computer 24/7. This differs from a surge protector since surge protectors are only designed to prevent electrical surges, but are not meant to keep the power active during a power outage.
- 4) At approximately what level of voltage can circuits begin to be susceptible to damage from ESD?
  - a. Devices that are most susceptible to ESD damage are generally those with Metal Oxide Semiconductor technology. Standard CMOS chips can be damaged by voltages as little as 250V. Many new microprocessors and LSI chips are very sensitive, and many new devices would be damaged by a voltage of 5V.

GaAsFETs can be destroyed by voltages as low as 100V. Ordinary bipolar transistors can be damaged by potentials of around 500V.

- 5) Find me the best **UPS** for less than \$95. What makes it the best?
  - a. The best UPS for less than \$95 is the **CyberPower AVR750U AVR UPS System, 750VA/450W, 12 Outlets, Compact, Black**. It provides the highest VA/W specs I could find for under \$95 on Amazon. It also has 12 outlets (6 for surge protection and battery backup), provides surge protection, has automatic voltage regulation, and includes a 3-year warranty.
  - b. <https://www.amazon.com/CyberPower-AVR750U-System-Outlets-Compact/dp/B00K8ZMTAQ>
- 6) Find me a best **surge protector** for \$40. What makes it the best?
  - a. The best surge protector for less than \$40 is the **Power Strip, Witeem Surge Protector with 12-Outlet (1875W/15A, 4360 Joules) and 4 USB Charging Ports (5V/6A, 30W), 6Ft Extension Cord, Wall Mountable Overload Protection Outlet for Home & Office, Black**. This surge protector allows 12 different devices to be plugged in at the same time. It also has four USB ports for charging USB devices. It is rated to absorb up to 4360 Joules and protects against overloading, spikes and fluctuations, protecting connected devices. It has a fire-retardant casing and is able to stand temperatures up to 1382 degrees Fahrenheit. It has a 6 foot cord that improves conductivity, durability and reduces heat build-up.
- 7) Explain the "**chain of custody**" that a computer technician would have to follow if an incident happened in their place of business.
  - a. The chain of custody is the chronological documentation or paper trail that records the sequence of custody, control, transfer, analysis, and disposition of physical or electronic evidence.
- 8) Explain the "**proper communication and professionalism**" that a computer technician would need to comply with in their place of business.
  - a. A computer field technician must be able to communicate effectively with clients and co-workers to share information and solve the problems that arise in their everyday life.
- 9) Explain what is EMI and RF interference. How does it affect computer equipment? What is cross talk?
  - a. EMI (electromagnetic) interference is a disturbance generated in the RF (radio frequency) range by an external source that affects electrical circuits by electromagnetic induction, electrostatic coupling, or conduction. This can affect computer equipment since it can cause performance and quality issues with other nearby sensitive devices like cheap computer speakers and Wi-Fi receivers.

Crosstalk is when a signal transmitted on one circuit or channel in a transmission system interferes with another and creates an undesired effect in the other circuit/channel.

10) Which devices should you not use with an anti-ESD wrist band? Explain

- a. You shouldn't need to use an anti-ESD wrist band with certain parts such as the monitor, case, PSU, speakers, or peripherals since there are no circuits being exposed.

11) Explain electrical sags/spikes/brownout/blackouts?

- a. Electrical sags are short duration reduction in rms voltage which can be caused by short circuit, overload, or starting of electric motors. Spikes are the opposite; they are short duration increase in electrical supply voltage, current, or transferred energy. A brownout is an intentional/unintentional drop in voltage in an electrical power supply system. A blackout is the loss of electrical power network supply to an end user.

12) How do we deal with E-waste and what do we E-waste? Explain

- a. To deal with e-waste, don't throw it in the trash, but take them to an e-waste recycling center like Staples or Best Buy, or a local one. We e-waste electronic products like computers, televisions, VCRs, stereos, copiers, and fax machines.

13) What is the MSDS? Explain

- a. The MSDS are Material Safety Data Sheets: Documents containing chemical hazard information. It also provides information about disposing, handling, precautions, storage, and accident procedures when working with certain components.

14) What voltage can kill a person? Explain

- a. Individuals have been electrocuted by appliances using ordinary house currents of 110 volts and by electrical apparatus in industry using as little as 42 volts direct current. Currents between 100 and 200 mA (0.1 – 0.2 amp) are lethal.

15) Can we use an air spray can and an air compressor to remove dust in a computer? Explain

- a. Yes, you can use an air spray can and an air compressor to remove dust in a computer.

16) Can we use a normal vacuum cleaner to remove dust from within a computer? Explain

- a. No, a normal vacuum cleaner cannot be used since it may damage computer parts or cause static electricity buildup.

17) Is it safe to run power cord/network cords, that run across a floor in an SOHO or computer lab? Explain

- a. It is not always safe to run power/network cords across a floor in a SOHO or computer lab since stepping on them can damage the cord or wires.