5.10 Storage Troubleshooting

As you study this section, answer the following questions:

- A hard disk is performing slowly. What can you do to speed up its performance?
- A system fails to boot, displaying an *Operating System Not Found* error message. What could be causing this issue?
- A hard disk connected to the motherboard is not recognized by the BIOS/UEFI firmware. What is causing this issue?
- A hard disk is making noise. What should you do?
- A computer system has an SSD drive installed. What should you do to optimize the useable lifespan of this device?

In this section, you will learn to:

- Optimize hard disk performance
- Troubleshoot boot failures
- Troubleshoot problems with storage device boot priority in the BIOS/UEFI firmware
- Troubleshoot SATA drive issues
- Optimize SSD storage devices

Key terms for this section include the following:

Term	Definition
Basic Input/Output System (BIOS)	Firmware that initializes hardware at startup and provides runtime services to the operating system.
Defragmentation	Reducing file fragments by grouping file pieces on a hard drive together.
Mean time before failure (MTBF)	A measurement of a hardware component's reliability generally stated in hours or thousands of hours.
TRIM	An SSD function that configures the operating system to communicate with an SSD device and tell it which blocks of data on the device are no longer required and can be deleted.
Unified Extensible Firmware Interface (UEFI)	A software program specification that connects firmware to the operating system. UEFI is eventually expected to replace BIOS.

This section helps you prepare for the following certification exam objectives:

Exam	Objective
CompTIA 220-1001	5.3 Given a scenario, troubleshoot hard drives and RAID arrays. - Common symptoms - Read/write failure

	· Slow performance · Loud clicking noise · Failure to boot · Drive not recognized · OS not found · RAID not found · RAID stops working · Proprietary crash screens(BSOD/pin wheel) · S.M.A.R.T. errors

CompTIA 220-1002	3.1 Given a scenario, troubleshoot Microsoft Windows OS problems.
	
	· Common symptoms
	  · Failure to boot
	  · No OS found
	  · Application crashes
	  · Blue screens