

# CPT254 Major Field Exam Study Guide

## Proposal

### General advice

The exam focuses more on major concepts than on specific, low-level details. Look especially at the advantages and disadvantages for various features/capabilities, and know the terminology for each of major concepts listed below.

### Specific concept areas

1. Scripting basics (languages, advantages/disadvantages, iteration, conditionals, regular expressions)
2. Booting (Boot process, GRUB, runlevels and startup scripts)
3. Access Control (sudo, su, root, security loopholes)
4. Processes (IDs, signals, priorities)
5. Filesystems (Major directories, file types, file permissions, file ownership, default permissions)
6. Users (adding/deleting users)
7. Storage (physical volumes, logical volumes, partitions, including their advantages/disadvantages)
8. Periodic processes (crontabs, /etc/cron directories)
9. Networking (major networking files, IP routing tables, DHCP, NAT, ARP)
10. Logging (what is logged, logging APIs, how syslog works/configured, log rotation)
11. Software installation and Management (OS installations, PXE, preseeding, package handling, mirroring)
12. DNS (types of nameservers, purpose of nameservers, TTL, DNS record types)
13. Network file systems (mounting, fstab, file sharing, LDAP)
14. E-mail (SMTP, mail agents (UA, MSA, MTA, DA, AA), aliases)
15. Web Servers (Virtual hosting, LAMP, choosing a web server)