# 4 Devices, malware, and authentication – Part 1 — Answers

## Answers

Work through these after you have tried the questions yourself.

**2.1** a virus needs a user to open or run a file; a worm spreads by itself with no human action.
**2.2** ransomware.
**2.3** salt adds unique random bits before hashing, so two identical passwords have different stored hashes.
**2.4** a fingerprint = something you are (biometric); a texted code = something you have; a PIN = something you know.
**2.5** an adversary must defeat two factors, so a stolen password alone cannot log in. \