Solutions

2.1

- The trap instruction; a fixed vector table picks the handler ✓.

2.2

- Owner rw-, group r–, other —: (110)(100)(000) ✓.

2.3

- The descriptor is authority the caller already earned – the daemon cannot widen it; a name asks the deputy to use its own greater authority ✓.

3.1

- Total: $5000 \times 2 \times 120$ ns $= 1.2$ ms ✓.
- Batch factor 100: one syscall per 100 calls – 50 syscalls at 240 ns each $= 12$ µs ✓.
- Validate always: the caller's identity and permissions, and every argument – pointers and lengths – at the boundary ✓.

3.2

- The daemon opens /salary.db with ITS OWN privilege, not the user's – the deputy is confused about whose authority to use ✓.
- Fix: the user passes an open descriptor (capability); the daemon prints only what it was handed and can refuse names outright ✓.
- Principle: least privilege – and validate every crossing ✓.
- Even with capabilities, a buggy deputy can print the content to the wrong place or leak it – authority is bounded, behaviour is not ✓.