Solutions

2.1

- Blocked; it enters ready when the read completes ✓.

2.2

- Its own stack, its own registers, its own program counter ✓.

2.3

- $5000/2.5 \times 10^9 = 2$ µs ✓.

3.1

- Running → blocked (read issued) ✓.
- Scheduler dispatches another process (ready → running elsewhere) ✓.
- Read completes: blocked → ready (wake) ✓.
- Dispatcher picks it: ready → running; the instruction restarts ✓.
- Switch cost 1 µs of a 4 ms wait = 0.025% ✓.
- The instruction is restartable because the fault happens before any visible side effect; otherwise preemption would lose or duplicate work ✓.

3.2

- Threads: 20×50 µs = 1 ms ✓.
- Processes: 20×500 µs = 10 ms ✓.
- Shared: the address space (code and cache) – no per-connection copy ✓.
- Riskier: one thread's crash takes the whole process – one address space ✓.
- Processes isolate: separate spaces mean a crash cannot corrupt another connection's state ✓.