# 11.6 CNS drugs and analgesia

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

**KEY WORDS** tolerance • dependence

## Objective

Match drug to site; explain tolerance and dependence.

## 1 Key knowledge and worked examples

### ■ Sites

NSAID at peripheral COX (gastric, renal cost); opioid at $\mu$ (respiratory depression, constipation); benzodiazepine GABA-A PAM; SSRI reuptake blocked, effect in weeks ✓.

### ■ Worked example: adaptation

Tolerance = down-regulation (same concentration, less effect); dependence = withdrawal unmasks the adapted state ✓. WHO ladder 1986/1996 named as the classic framework.

## 2 Practice

**2.1** Which opioid effect barely tolerises? [3]

**2.2** Why do SSRIs take weeks despite immediate reuptake blockade? [3]

**2.3** Name the enzyme NSAIDs block and its two isoforms. [3]



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## 3 Exam-style questions

**3.1** Three fictional pains: prostaglandin-mediated inflammation; severe post-operative pain; neuropathic burning.

Match each to its first-line mechanism site (peripheral COX; $\mu$ receptor; neuronal excitability agents) with one cost named for the first two (gastric; respiratory) ✓. Explain why combinations from different sites add ✓. [8]

**3.2** A fictional patient on long-term benzodiazepines stops abruptly.

Explain what tolerance was (receptor adaptation: same dose, less effect), what dependence is (the adapted state uncovered by withdrawal), and why the course is kept short by design ✓. Contrast the paracetamol overdose mechanism (glutathione saturated; metabolite binds liver protein – MED10) as a dose-related toxicity instead ✓. [7]



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