

系所組別：行為醫學研究所乙、丙組

考試科目：生理心理學

考試日期：0308，節次：1

※ 考生請注意：本試題 可 不可 使用計算機

1. Compare and contrast osmotic thirst and hypovolemic thirst on cause, sensor, thirst signal anatomical pathway, water conservation mechanism and drinking drive mechanism. (30%)
2. Contrast A $\delta$  and C fibers in nociceptive processing. (Morphology, impulse conduction, function must be included) (20%)
3. Given the fact that human genome contains only approximately 1000 odorant receptor genes, humans are estimated to discriminate 5000 different odors. Please explain how is possible for the odor encoding at the odorant receptor level. (20%) Since 1)there is an anatomical match for many olfactory receptor cells and one glomerulus in olfactory bulb and 2)receptor proteins are responsible for guiding the innervating axons to the proper glomerulus, please predict what would happen (physiologically and anatomically) if a bunch of olfactory receptor cells are destroyed from chemical injury and the receptor proteins of the newly generated olfactory receptor axons are knock-downed by experimenters. (30%)