

※ 注意：請於試卷上依序作答，並應註明作答之部份及其題號。

一、名詞解釋題（七題，每題2分，共計十四分）：請簡單扼要回答重點並簡要說明其意涵

1. Wernicke's aphasia
2. hypofrontality hypothesis
3. Long-term potentiation
4. GFP (Note: Nobel Prize in Chemistry 2008)
5. cocaine- and amphetamine-regulated transcript (CART)
6. hypothalamic-pituitary-adrenal axis
7. patient H.M.

二、問答題（3題，每題十二分，共三十六分）：請簡單扼要回答但務求詳盡。

1. 大腦神經系統會因應學習行為而產生變化並將相關的訊息儲存於大腦中形成記憶，長久以來記憶的儲存機制一直都是生物心理學家與神經科學家所關心的課題之一，請列舉說明學習所導致的突觸變化（synaptic changes）可能有那幾種？並請舉出一個過去科學家的實驗來說明如何研究學習與記憶在突觸（synapses）上造成的改變以及證據？（12 points）
2. 請問精神分裂症（schizophrenia）為何？所造成的臨床症狀與組織病變有那些？這些生理上及行為上之異常與治療藥物之藥理上有無任何關聯？就目前所知精神分裂症致病之先天與後天可能成因有哪些？你比較支持先天還是後天的變異是造成精神分裂症的論點？你的證據為何？或是如何證明你的主張？（12 points）
3. 在心理學過去的研究中，許多特殊的個案往往提供研究者重要的線索，由巨觀的角度從 top-down 的方式去發掘現象背後的可能原因；另一方面近十幾年來拜分子生物學與基因遺傳學研究的突飛猛進，提供了心理學家/生物心理學家由微觀的角度出發從 bottom-up 的方式去研究心理現象及行為背後的機制。請問腦傷、特殊疾病或具遺傳缺陷的病人以及實驗室動物與培養皿中的細胞或試管中的 DNA 等等不同的研究素材或對象，如何幫助我們了解人類的心智活動、行為現象及其神經機制？請舉一個你感興趣的心理現象或是精神疾病為例，具體說明這些研究工具或素材如何幫助我們瞭解心智活動歷程與行為認知功能的神經機制。（12 points）

見背面

三、 Crossword Puzzle (20%)

請依照下列提示，在正確的位置上，用英文填入正確的答案。每一個空格皆是一個英文字母，非標點符號或是空白。在作答卷上，請清楚拼出每個答案的字母，並清楚加註該答案之題號 (1, 2, 3, ... A, B, C, ...)。

直行：

1. Huge individual difference is found in subjective sensory experiences, including in tasting. It has been identified that some people (called _____) are more sensitive to a bitter substance called PROP than others, and this may have a genetic origin.
2. According to the Feature Integration Theory by Anne Treisman, the role of _____ is to integrate objects' features so that we obtain a coherence perception of objects.
3. To consider both image size and viewing distance, visual scientists use _____ as a unit to describe the retinal image size of an object.
4. J.J. Gibson thinks _____ provides information about human movement and where the observer is heading to.
5. _____ is one of the major scientists who strongly promoted the trichromatic theory in color vision.
6. _____ occurs when the perception of a visual (or auditory) stimulus is affected by another visual (or auditory) stimulus. Perceptual psychologists use it as an inference that at least some overlapped neural mechanisms are involved in processing these two stimuli.
7. There are 120 million rods and 6 million cones in the retina, but there are only 1 million ganglion cells. This says a process called _____ occurs in the retina.
8. Psychologists use illusions to study human perceptual system. Barber pole illusion is an illusion in which the stripes in the barber pole appear to be traveling down the length of the pole, rather than around it. This is a demonstration of _____ problem in motion perception.
9. The first site where visual system starts to send out neural signal.
10. The basic taste sensations that have been identified include: salty, sour, sweet, bitter, and _____.

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橫列：

- A. Grill-Spector et al. (2004) found that the brain activation in _____ is associated with observers' response to indicate if they could identify a human face correctly.
- B. The scientist who proposed a motion detector based on his observations on insect behavior. This proposed circuit later was named after him afterwards, and the elaborated version of the detector works well for human motion perception also.
- C. Some psychologists believe attention is not prerequisite for perception, and it is a strong support to demonstrate observers' ability to recognize the _____ of a scene despite the display duration is as short as 100 ms.
- D. It has been a challenge to build a common vocabulary to describe one's olfactory experience. _____ proposed an odor prism to classify olfactory stimuli, but it is left with history importance only nowadays.
- E. The scientist who designed random-dot stereogram to reveal binocular disparity alone is sufficient to generate depth perception.
- F. The same piece of music may sound very differently when played with different musical instruments. This is because of the difference in _____ of these two musical instruments.
- G. _____ refers to the plane with zero binocular disparity.
- H. _____ is the stimuli designed by Gauthier to examine whether face is really a special object to process.
- I. When two identical images with lateral displacement are presented to two eyes, binocular disparity will generate depth perception. When two different images are presented to two eyes, however, binocular _____ occurs.
- J. _____ is a paradigm used widely in perceptual developmental, and Bornstein (1976) used this paradigm to study infant color perception.

見背面

題號： 70

國立臺灣大學98學年度碩士班招生考試試題

科目：知覺與生理心理學

題號： 70

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四、Short Answers (30%)

下面為辛禮夕在今年年假的某個下午所經歷的事情。請你用你對知覺心理學的瞭解，解釋說明下列六個知覺經驗(粗體畫橫線者)發生的原因以及背後發生的機制。

辛禮夕過年期間與朋友郝學昇相約外出敘舊，兩人約在車站相見。儘管車站附近的招牌林立，且人潮洶湧，但是辛禮夕卻發現他能夠在人群中很快的辨識出他近十年的老友的面孔(1)。

辛禮夕遠遠看到穿著灰色上衣的老友郝學昇，便急忙向他招手，但等他倆走近，辛禮夕才發現郝學昇所穿的原來是黑白相間的細條紋襯衫，他不禁搔頭自問：『奇怪？為什麼剛剛明明看到的是灰色上衣，但是現在卻變成黑白條紋了？(2)』。

他們決定前往一家過去常去的餐廳用餐。點了兩人經常點的餐點後，辛禮夕說：『今天的菜沒什麼味道。』郝學昇說：『不會啊？這些菜的味道與數年前的記憶都還一樣，是不是因為你感冒，鼻塞聞不到味道？』辛禮夕哈哈大笑，說，『我是說的沒有味道(flavor)，跟嗅覺的味道(smell)有什麼關係？(3)』。

用餐同時，餐廳中播放著 Bill Evans 的 Waltz for Debby，這首歌曲勾起了兩人大學時期的生活片段的回憶，郝學昇感嘆的說，『音樂不就是連串的聲波而已，卻能引發我們一連串過往的記憶與情緒，不知究竟是怎麼做到的？(4)』。辛禮夕說道：『既然這樣懷舊，不如去以前常去的電影院看場電影吧！』

開車前往電影院途中，兩人突然聽到有救火車的警笛聲，雖然距離尚遠兩人並沒有看見救火車，但是仍在很短的時間內判斷了警笛聲的來源，確定了救火車的位置(5)，於是往路邊停靠以讓救火車先行通過路口。

到達電影院之後，影片已經開始放映，兩人匆匆的想要找到自己的位子坐下，但是電影院內漆黑一片，兩人一開始連彼此都看不見，只好在黑暗中緩慢的摸索，但是幾分鐘後，發現自己已經可以清楚的看到身旁人與座位的輪廓(6)。兩人相約以後應該要更常相聚，所以決定三月初在台大校園相見。

試題隨卷繳回