

考試科目	知覺與生理心理學	系所別	心理學系/實驗與發展組	考試時間	2月3日(五)第四節
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I. 知覺心理學 (50%)

- 一、近年來，認知神經科學成為心理學的重要研究取向之一，在知覺領域亦是如此。然而從早期的模組 (module) 觀念，到近期的神經網絡 (neural network) 觀念，在想法上有何不變與改變？試以視覺為例，說明現今對於大腦知覺處理的瞭解。(10%)
- 二、自然界有許多動物具有保護色，例如枯葉蝶、竹節蟲等，當牠們靜止不動時很難被察覺，然而只要動起來就很容易被看到。試以視覺的知覺組織、運動知覺與注意力原理，說明保護色在靜態與動態情況之差異。(5%)
- 三、不變訊息 (invariant information) 是 Gibson 主張的生態取向 (ecological approach) 中的重要概念，何謂不變訊息？有何重要性？在空間距離知覺與運動知覺方面，分別有何不變訊息？(10%)
- 四、長期處於特定頻率高音量的噪音環境中工作，會使得工作人員的聽覺受到永久的嚴重損傷，無法再聽到該特定頻率的聲音。根據現今對於聽覺機制的瞭解，此一損傷最可能發生在聽覺系統的那個部位？又此一現象支持何種音高知覺 (pitch perception) 的理論？為什麼？(10%)
- 五、疫情趨緩，終於得以與朋友共聚晚餐。為表達自己的熱情，此次聚餐的打扮將以橙色為主。試以視覺原理或相關知識，對於下列現象加以說明或解釋：(15%)
 - (1) 黃昏時分，打開衣櫥，想要找一件橙色的上衣，然而光線太弱，分不清楚衣服的顏色是橙色、咖啡色、紅色或是其他顏色，為什麼會出現這樣的情況？(5%)
 - (2) 續上題，於是打開了房間的燈，是溫暖的黃色燈光。雖然燈光的波長分布與自然光有很大的差異，但是仍然可以清楚區辨衣服的顏色，這是何種視覺現象？視覺系統是如何辦到的？(5%)
 - (3) 為了顏色搭配具有整體感，又找出了與上衣顏色幾乎一樣的橙色皮包及口罩。三種物品是不同的材質，反射光線的特性必然不同，為何會被知覺成相同的顏色？(5%)

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

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II. 生理心理学 (共 50%)

一、選擇題 (每題 2%，共 20%)

1. Neurons

- support and nourish glial cells.
- transmit neural impulses.
- are present only in higher animals like man.
- are composed of many nerves bundled together.

2. The gap between two neurons across which communication occurs is called

- nucleus
- junction
- synapse
- neurotransmitter

3. The strength of the action potential

- is the same regardless of where on the neuron it is sampled.
- varies according to the length of the axon.
- varies according to the strength of the original impulse.
- varies according to the amount of sodium available for diffusion.

4. The autonomic nervous system is

- involved in the unconscious regulation of internal organs and glands.
- involved in the coordination of voluntary muscle groups.
- a component of the central nervous system.
- controlled by the somatic nervous system.

5. Which of the following statements is an accurate summary of the relationship between the nervous system and the endocrine system?

- The activity of the two systems counteract each other; the nervous system tries to maintain the individual in a state of calm, while the endocrine system tries to maintain the individual in a state of arousal.
- Each system has its own specific function, and each works independently of the other.
- Both systems operate through the use of chemical messengers, some of which are the same in both systems.
- The activity of the endocrine system is much faster than that of the nervous system.

6. While Kelly is walking across campus, a large dog rushes out of the bushes and starts barking. Her heart races, she starts breathing hard. What aspect of the nervous system is mediating this arousal?

- sympathetic nervous system
- parasympathetic nervous system
- central nervous system
- somatic

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7. Which task would probably require the largest area of motor cortex for correct performance?
- a. riding a horse b. writing your name
c. climbing stairs d. kicking a football
8. Sensory information associated with touch and pressure on the skin is processed in the _____ lobe.
- a. frontal b. occipital
c. parietal d. temporal
9. The reticular formation
- a. sorts out sensory information and influences levels of alertness.
b. is an important part of the limbic system.
c. produces reflexive responses.
d. monitors our blood sugar levels.
10. The major inhibitory neurotransmitter in the brain is
- a. glutamate. b. serotonin.
c. norepinephrine. d. GABA.

二、名詞解釋(每題5%，共20%)

1. Hebbian rule
2. ecological validity
3. sex-linked traits
4. electrophysiology

三、問答題(10%)

1. 請說明 amygdala 的解剖位置、臨床症狀、並舉實驗例說明其認知功能。

備 註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。
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