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以下各選擇題每題 3 分。　　　　　　　　＜選擇題請在答案卡上作答，否則不予計分。＞

1. 某篇期刊論文中使用某個作業測量工作記憶的中央執行功用，關於這個作業的描述如下：

"… a number–letter pair (e.g., 7G) was presented in one of four quadrants on the computer screen. The participants were instructed to indicate whether the number was odd or even (2, 4, 6, and 8 for even; 3, 5, 7, and 9 for odd) when the number–letter pair was presented in either of the top two quadrants and to indicate whether the letter was a consonant or a vowel (G, K, M, and R for consonant; A, E, I, and U for vowel) when the number–letter pair was presented in either of the bottom two quadrants".

請問這個作業主要測量的是何種功用？（A）updating（B）shifting（C）inhibiting（D）suppressing。

2. 關於 retroactive interference（RI）的實驗描述如下：

"Walk and Johns (1984) investigated RI in scent memory by exposing participants to two food scents, followed by (or not – control condition) further potentially interfering 'unhelpful' stimuli (a third scent; the name of a third scent), or 'helpful' stimuli (the name of one of the original two scents). Participants were then presented with four scents of which one was the original scent that they were asked to try to correctly recognize. Results demonstrated a clear effect of RI: identification of the original scent was significantly higher when the original scent was followed by the control condition, than when it was followed by the further 'unhelpful' stimuli."

根據以上說明，我們可以推論以下敘述何者為真？（A）控制組接受 unhelpful 刺激（B）不安排任何氣味刺激的空白操弄，會增強對原先氣味的記憶（C）RI 是指新刺激會干擾對舊刺激的記憶（D）unhelpful 刺激是不好聞的氣味。

3. 某個認知作業中發現的效應如下所述：

"This effect is seen in the context of tasks in which, across many trials, the participant selects a target (using a cue such as color, location, or appearance) and responds to the identity of that stimulus in the presence of one or more distractors. The critical manipulation in such a task occurs between consecutive trials: The participant must respond to a target on the current trial (called the test trial) that had appeared as a distractor on the previous trial (called the prime trial). Response time and accuracy on experimental trials, in which the current target was the previous distractor, are compared with response time and accuracy on control trials, in which neither targets nor distractors repeat across trials. This effect is a slowdown in response time (and often, an increase in errors) on experimental as compared with control trials."

請問這個效應是什麼？（A）negative priming（B）repetition priming（C）orthographical priming（D）form priming。

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4. 某認知實驗的程序見下圖及相關文字敍述。
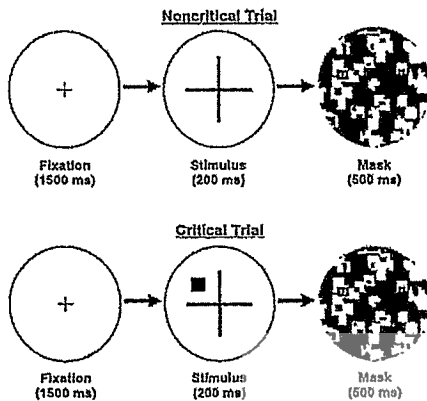
"On each trial, participants judge whether the horizontal or vertical part of the cross is longer. On the first few noncritical trials, nothing unexpected appears. However, on a critical trial, an unexpected shape appears in one of the cross's quadrants. Regardless of whether the unexpected object has a unique color, shape, or motion signal, participants fail to notice it about 25% of the time."

請問這個實驗所觀察到的現象最有可能是？（A）change blindness（B）inattentional blindness（C）selective attention（D）base rate neglect。

5. 以下節錄一篇關於聯結學習（associative learning）的期刊論文內容，大意是在介紹實驗的流程以及實驗結果。

"In the first phase of learning, a compound of two cues, A and B, is paired with an outcome. Both cues acquire associative strength with the outcome. In the next phase of learning, cue A by itself is paired with the outcome. In subsequent testing, cue B has lost some of its associative strength with the outcome, despite the fact that it was not present in the second phase of training."

根據這段介紹，我們可以知道，一共有幾個學習階段？（A）1（B）3（C）0（D）2。

6. 承上題，這個實驗發現的現象稱作？（A）backward blocking effect（B）highlighting effect（C）backward effect（D）forward blocking effect。

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7. 某實驗探討簡單廣度（word span task）作業和複雜廣度（operation span task）作業在立即回憶與延遲兩情境下的回憶正確率，程序如下：

"Each subject completed a word span task and an operation span task. The order of the tests was counter-balanced for each group. For the word span task subjects were asked to view the to-be-remembered words on the screen, and recall them out loud when they saw the recall cue (i.e., ????). The recall cue followed the last word on each trial. The test included trials with set sizes of two, three, or four to-be-remembered words, with three trials of each length… The operation span task was identical to the word span task except that before each to-be-remembered was presented, an arithmetic problem (e.g., 8 · 6 =) was presented… After completing the span tasks, subjects completed a distracter task… followed by instructions for the delayed recall test. For the delayed recall test subjects were told to recall as many words as they could from both of the span tasks that they had completed… There was… no main effect of Task Type. Planned comparisons confirmed that immediate recall was greater for the word span task, $F(1, 23) = 19.79$, MSE = 0.06, $\eta^2 = 0.46$, but delayed recall was greater for the operation span task, $F(1, 23) = 11.57$, MSE = 0.06, $\eta^2 = 0.34$."

根據以上關於實驗的描述，請問這個實驗採用什麼設計？（Ａ）受試者間設計（Ｂ）受試者內設計（Ｃ）配對組設計（Ｄ）混合設計。

8. 承第 7 題，關於這個實驗的敘述何者為真？（Ａ）1 個獨變項，沒有主要效果（Ｂ）2 個獨變項，沒有交互作用（Ｃ）1 個獨變項有主要效果（Ｄ）2 個獨變項，有交互作用。

9. 承第 7 題，記憶列表的長度一共有幾種？（Ａ）3（Ｂ）2（Ｃ）1（Ｄ）4。

10. 承第 7 題，這個實驗發現的效應稱作？（Ａ）encoding specificity effect（Ｂ）McCabe effect（Ｃ）Hebb effect（Ｄ）level of processing effect。

以下各選擇題每題 4 分。

11. Cowan（2010）的 embedded-processes model 主要假設不包括下列哪一項？（Ａ）工作記憶有 encoding、representation、maintenance 和 retrieval 四種處理（Ｂ）工作記憶的個別差異可以由注意力和長期記憶的限制來解釋（Ｃ）意識覺察（conscious awareness）有 voluntary 和 involuntary 兩個子系統（Ｄ）短期記憶是長期記憶活化的部分。

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12. 類神經網路模型（neural network model）常被選作為認知模型解釋人們在認知作業中的行為表現，下列哪項特點不是它被選中的可能理由？（A）具有容錯彈性（B）可以表現自主學習（C）隱藏層節點有明確的心理實質性（D）Backpropagation 演算法在功能上與真實神經元學習時依據的法則 Hebbian rule 一樣。

13. 下列關於展望理論（prospect theory）何者有誤？（A）決策歷程包括 editing 和 evaluation 兩階段（B）losses 效用曲線的斜率比 gains 效用曲線來得大（C）效用的計算公式為 $V = \sum_i \pi(p_i)v(x_i)$，其中，$v(x_i)$是選項$x_i$的效用，$\pi$則是選項出現機率$p_i$的加權公式（D）在 editing 階段中人們使用捷思排列可能的選項，此時容易發生框架效應（framing effect）。

14. 下列關於類別學習中範例模型（exemplar model）GCM 的說法，何者有誤？（A）分類的依據是刺激之間的相似性（B）某刺激與某類別的相似性為，該刺激與該類別所有範例的相似性總和（C）刺激向度的選擇性注意力調節依據的是模型能否最正確地分類（D）刺激之間的相似性不是自由估計參數。

15. 下列何者是內隱記憶作業？（A）word fragment completion（B）cue recall（C）recognition（D）free recall。

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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發展心理學（50%）

一、領域普遍（domain-general）與領域殊異（domain-specific）觀點，對發展起源的解釋有何不同？請試舉一發展現象為例說明之。（10分）

二、根據動物行為觀點，請說明微笑與可愛在依附關係的形成中如何發揮作用。（10分）

三、根據皮亞傑（J. Piaget）的認知發展階段理論，幼兒大約幾歲時開始具保留概念（conservation）？何謂保留概念？保留概念運作所需的基本認知基模為何？請綜合回答以上問題。（15分）

四、解釋名詞（15分）

1. 語言發展的統計式學習觀點（statistical learning approach）

2. 道德錯愕（moral dumbfounding）

3. 嬰兒的直覺物理（intuitive physics of the infant）

備　　　　註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。