

考試科目	計算機概論 與程式設計	系所別	數位內容碩士學位學程 資訊應用組	考試時間	2月 9日(三) 第二節
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Please answer the following questions. For answers in code, any programming language (but not mixed) or pseudocode is allowed. (100%)

1. Please sort the following hardware components from the shorter to longer response time as a memory hierarchy. (Magnetic tape, RAM, SSD, register, CD, cache, and HDD) Please note which of it/them is/are on the CPU, and which of it/them is/are volatile and non-volatile. (10%) Please define what is volatile and non-volatile memory. (5%)
2. What are the four key features in object-oriented programming (OOP)? Please describe them. (10%) Please describe what is the difference among **public**, **private** and **protected** members. (5%)
3. Please draw the process life cycle diagram, including five states and six transitions, and describe them. (15%)
4. Please write down pseudocode of Fibonacci number in both iterative and recursive approaches, where fib (1) = 1, fib (2) = 1 and fib (3) = 2. What is the time and space complexity of them (in big-O notation)? Describe the reasons or calculating procedure. (12%) How many times the Fibonacci number function is called when the input argument is 6. Please write down and draw the procedure conceptually. (8%)
5. Please describe what is Non-Fungible Token (NFT) and metaverse, and how do they influence the current or future daily lives. (15%)
6. Please write down pseudocode of Bubble sort. When the elements in the input array are {29, 14, 17, 4, 53, 31}, write down or draw the procedure of sorting. What is the time and space complexity of it (in big-O notation)? (20%)

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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考試科目	新媒介與科技	系所別	數位內容碩士學位學程 創意傳播組	考試時間	2月9日(三)第三節
<p>元宇宙 (Metaverse) 是 2021 年最重要的科技議題，但是其內涵究竟是什麼？各方面的討論林林總總，一時間幾乎無物不是元宇宙，沒有一樣科技跟元宇宙沒有關係。對於新媒介與科技關心的你，應該已經對元宇宙有所了解，並且發展出自己的看法。</p> <p>對於以下幾項問題，元宇宙概念的發展會造成什麼影響？在百家爭鳴，人人自命先知的此時，這些問題沒有標準答案。請就這些主題進行獨立思考，陳述自己的觀點，主張以及理由。</p> <p>第一題，現實世界與元宇宙世界之間，存在何種關係？那些方面會有虛實整合，那些方面必須分開獨立？為什麼？（30%）</p> <p>第二題，要實現元宇宙概念中的世界，面對的人機互動 (Human-Computer Interaction) 挑戰會是什麼？例如說，元宇宙中人跟環境的互動，人跟人的互動，人跟人工智慧的互動，會面臨什麼障礙？如何克服？（35%）</p> <p>第三題，請舉一個你所熟悉的重要議題，例如終結貧窮，性別平等，教育，責任消費及生產，永續發展，健康照護，政治制度，等等，來說明元宇宙如何在這個議題上造成改變，產生價值？或者為什麼不會造成改變，那麼元宇宙還有價值嗎？（35%）</p>					
備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。				