試題一：選擇題（40 分，每題 4 分，答錯不倒扣）
※ (1-5) 複選題；(6-10) 單選題

1. 下列數系轉換何者正確？
   A \(11010011.1101_{12} = 211.8125_{10}\)
   
   B \(1234.5_{8} = 668.225_{10}\)
   
   C \(ABC.D_{16} = 2678.625_{10}\)
   
   D \(1000.3_{16} = 4096.1875_{10}\)。

2. 有關主記憶體管理分割區域，下列敘述何者錯誤？
   A 在多重程式處理系統中，主記憶體分割區（Partition）必須固定大小區域，方可執行。
   B 在分頁設計（Paging）中，頁框（Frame）與分頁（Page）必須大小相同，方可執行。
   C 在分段設計（Segmentation）中，每一分段長度必須大小相同，方可執行。
   D 在分頁式分段設計（Segmentation with paging）中，每一分段及分頁長度必須大小相同，方可執行。

3. 有關網路系統模型，下列敘述何者正確？
   A OSI 網路模型分七層定義，而 DoD 模型只分四層。
   B FTP, E-mail 是屬於應用層。
   C 網路層主要工作為定址及選擇傳送路徑。
   D 控制資料流量是連結層之工作。
4. Which of the following are correct?
   A  BIOS is used to find the operating system and to load its kernel into memory for execution
   B  BIOS is a firmware that contains the startup instructions
   C  BIOS is a basic input/output system
   D  BIOS is stored in the hard disk.

5. Which of the following are correct?
   A  Hash technique is used for sorting
   B  The operation of Queue is First In First Out
   C  The operation of Stack is First In Last Out
   D  An array is useful for frequent insertion and deletion.

6. Code reusability, interoperability, and portability are factors important to the ____ of software.
   A. operability
   B. maintainability.
   C. transferability
   D. longevity.

7. Which of the following is a binary operator?
   A. select
   B. update
   C. difference
   D. all of the above

8. Accuracy, efficiency, reliability, security, timeliness, and usability are factors important to the ____ of software.
   A. operability
   B. maintainability.
   C. transferability
   D. longevity.

9. In an abstract data type, ____________.
   A. the ADT implementation is known
   B. the ADT implementation is hidden
   C. the ADT functions are hidden
   D. none of the above
10. If there are 16 nodes to be stored in a binary tree, the minimum height of the tree is _____.
   A. 16
   B. 5
   C. 4
   D. 1

試題二：問答題 〈60 分〉

1. CPU 設計架構有 RISC 和 CISC 兩種
   a. 試寫出其中、英文名稱。(4%)
   b. 試解釋其意義，並比較其功能、速度之差異性。(6%)

2. CPU Scheduler 一般可分為 Long-term, Medium-term 及 Short-term scheduler, 試分別解釋其意義。(10%)

3. Please describe the four primary functions of an operating system. (10%)

4. a. What is the difference between a depth-first traversal and a breadth-first traversal of a binary tree? (5%)
   b. What is the difference between a depth-first traversal and a breadth-first traversal of a graph? (5%)

5. Discuss the three loop statements in the C language. (10%)

6. a. What is the difference between a frame and a packet? (5%)
   b. What is the purpose of a synchronization point? (5%)

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