

國立交通大學九十學年度碩士班入學考試試題

科目名稱：計算機概論(461)

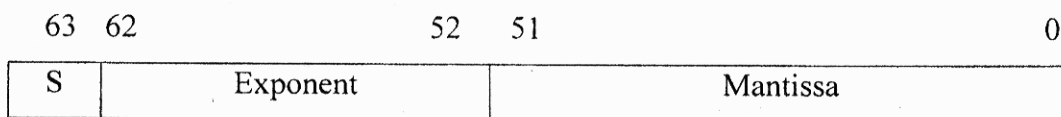
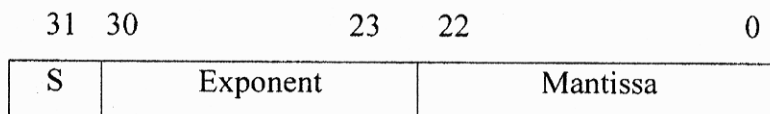
考試日期：90年4月21日 第3節

系所班別：資訊管理研究所 組別：甲組

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*作答前, 請先核對試題、答案卷(試卷)與准考證上之所組別與考試科目是否相符!!

1. The IEEE 754 floating-point standard defines both a single-precision (32-bit) and a double-precision (64-bit) format for representing floating-point numbers. The format implies the exponent base is 2. The form is like following:



The normalized floating-point number is the leftmost bit (most significant bit) of the mantissa is 1, this bit is often not stored and is assumed to be a hidden bit to the left of the radix point which allows the mantissa to have one more significant bit. A bias of 127 and 1023 are used in the exponent.

- (a) Please show the mathematical representation formula for both 32 bit and 64 bit floating-point numbers. (4%)
- (b) Can you define a way to represent zero and infinity? (4%)
- (c) What is the precision for each format? (4%)
- (d) Please show the decimal value -1.75 in normalized floating-point format for both 32 bit and 64 bit cases. (4%)
2. Four people, members of an education panel, each has an on/off button that is used to record their opinion in deciding the eligible student to enter the school. Instead of recording individual scores, some data processing is required such that the score board shows an 'agree' when the majority vote is in favor and a 'disagree' when against. Provision must also be made to indicate a 'tie' which means further consideration is required. From the verbal statement: derive a truth table for the problem (5%) and simplify the equations (4%).

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第2頁,共2頁

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3. 本題有關網路安全
 - (a) 什麼是『電子憑證』(public-key certificate)? 5%
 - (b) 假設甲擁有一張電子憑證,並且使用它在網路商店乙處從事網路購物。
甲和乙各要交換哪些資料和執行哪些動作以確保交易的安全? 5%
4. 本題有關程式設計
 - (a) 什麼是『object-oriented programming』? 5%
 - (b) 利用 pseudo code 來寫一『汽車』class。汽車的動作有「前進」、「右彎」、「左彎」和「煞車」,每一部汽車皆有一車牌號碼、一駕駛座、和若干乘客座。 5%
 - (c) 現有一 A 牌汽車,車牌號碼為「ZZZ-123」,有四乘客座;除此之外,該汽車還可以有「倒退」的動作。試利用(b)所定義之汽車 class 來定義這部 A 牌汽車。5%
5. 試說明何謂 DFD 及 UML? 其功用如何? 為什麼你認識的人使用或不使用它們? 10%
6. 如何檢驗一個 AND gate 是好的? 5%
7. 檢驗一個晶片(有 32 bits 輸入,有 32 bits 輸出)估計要多少時間? 5%
8. 驗證或測試一個 486CPU 所需的時間,和對 Pentium CPU 相差有多大?
Internet 在這些 CPU 出廠時如何保證一個 CPU 的晶片是好的? 5%
9. 試述 Java applet lifecycle? 7%
10. 試說明何謂 SCM 及 EIP? 其基本功能與架構為何? 就你所知目前企業使用狀況如何? 9%
11. How to evaluate business process performance? 9%