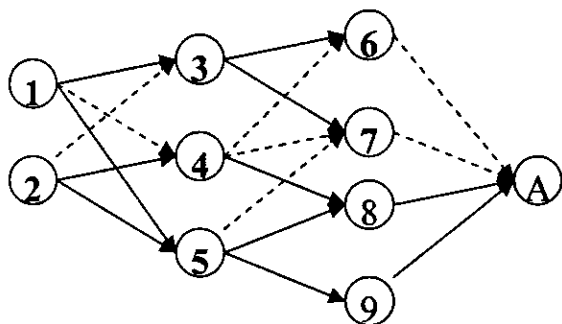


科目名稱：資訊管理概論(5101) 考試日期：95 年 3 月 12 日 第 2 節

系所班別：資訊管理研究所 組別：資管所乙組 第 1 頁, 共 2 頁

*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. (15%) 導入新的 ERP 系統若要成功關鍵因素很多, 請寫三個關鍵因素並就其中一項加以闡述.
2. (15%) Structural equation modeling, or SEM, is a very general, chiefly linear, chiefly cross-sectional statistical modeling technique. Factor analysis, path analysis and regression all represent special cases of SEM. Is SEM a confirmatory or exploratory technique? Please briefly explain what are steps in doing SEM.
3. (a) (4%) What are the main economic characteristics of information goods which distinguish them from traditional commodity?
(b) (4%) Describe the impact of DRM (digital right management) and P2P (peer to peer) technologies on the industry of digital content. Address both positive and negative impacts from the perspectives of the consumers, the content providers, and the society.
4. (8%) Explain the following technologies or mechanisms, and illustrate their commercial applications respectively: (a) Utility computing (b) RFID (Radio Frequency Identification) (c) Person to person payment (d) Vickrey auction
5. (a) (4%) Describe the respective role of the digital signature technology and reputation mechanism in the security enforcement of electronic commerce.
(b) (8%) Consider a reputation system described by a quadruple (G, W, A, T) , where trust network G is a weighted multigraph (V, E) , with V being the set of nodes in the network and E the set of edges which are assigned weights w_{ij} drawn from the feedback data set W . Trust inference engine A is an algorithm that operates on the graph and outputs a specific trust value $t_{ij} \in T$ for any request node i and target node j in the network as its input. Write a recursive BFS algorithm A and apply it to infer trust values t_{1A} and t_{2A} in the following trust network, where $W = \{0, 1\}$ and $T = [0, 1]$. The weight is 1 in all solid edges (high trustworthiness) and 0 in all dashed edges (low trustworthiness). Write down your assumption if any.



6. (a) (4%) What are the purposes of normalization in database design? Explain the objectives of the first, second, and third normalization respectively.
(b) (4%) Determine the functional dependencies that exist in the following table. After determining the functional dependencies, convert this table to an equivalent collection of tables that are in the third normal form
PART (PartNum, Description, OnHand, Class, Warehouse, Price,
OrderNum, OrderDate, CustomerNum, CustomerName, RepNum, LastName, FirstName,
NumOrdered, QuotedPrice))
(c) (4%) ACID is the acronym that specifies the four required elements of a safe transaction in database systems. Explain these four elements.

國立交通大學 95 學年度碩士班入學考試試題

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7. (30%) 以下文章係轉載自 2005-12-29/經濟日報對台灣高速公路電子收費 ETC 的部份說明。

資訊業朝車用電子領域發展，是台灣產業發展重大議題，智慧型運輸系統則是政府發展交通事業，及提升資訊產業應用領域的一大方向；而高速公路電子收費系統的建置，將是該發展過程中的重要里程碑。

所謂智慧型運輸系統 ITS (Intelligent Transport System)，是種整合「人、路、車」的管理策略，也就是將資訊、電信、電子技術應用於交通行車的服務，並可有效提升行車效率、減少交通事故，一個先進而完整的智慧運輸環境，將可讓任何人，在任何時間、地點，都享有優質的駕駛環境及交通服務，讓行車過程變得更安全，環境污染也降到最低，其中推動高速公路電子收費 ETC 政策，則是推廣智慧運輸環境的第一階段工程。

電子收費 ETC (Electronic Toll Collection) 指的是車輛行經高速公路收費站，只要配備車用讀卡機及感應器，就可行駛電子收費專用車道，就可進行自動扣款，這樣的便利服務就叫 ETC 電子收費；透過 ETC 電子收費，不但可節省寶貴行車時間，因不必停車，故可節省耗油及煞車來令片磨損，更重要的是可減少高速公路塞車機率，未來更能提供完整而有效的交通資訊與路況，對政策推動有很大幫助，加上可促進通訊及車上讀卡機等相關產業升級，極具發展優勢。

同學們請依據以上之背景說明，思考如何以一個現代資訊人的觀點去改善、發現或創新此具“智慧型”高速公路電子收費系統的各種可能附加功能的創新設計至少三項，每項的評分各佔 10%。

注意：本題給分的重點將會分別針對您所提創意的可行性及其說明，與所使用的智慧型資訊技術或方法學的應用說明分別進行評量。