九十三學年度中央大學資管系碩士專班入學考試

科目：計算機概論

注意：答題時不用抄題，但請註明題號，依序作答。

一、「陳先生曾經在美國 Oracle 的研發單位工作，在 Oracle 的下一代 OODB 資料庫管理系統開發團隊中撰寫程式有兩年經驗。我們銀行這個開發 e-Payment 和 e-Financing 系統的計畫也正好使用 Oracle 的 DBMS，陳先生正好是一位最佳的分析師人選。」請針對以上的陳述加以評論，指出你的立場，並說明理由。(10%)

二、「我們的網站最近安裝了 SSL 的網路安全機制，我想，我們的網路商店已經沒有任何的安全顧慮了。」請針對以上的陳述加以評論，指出你的立場，並說明理由。(10%)

三、「很多顧客抱怨我們的網站反應太慢。許經理，根據你上個月的報告，我們連外的通信線路是兩條 T3 線。是不是應該再增加一條？」假設你是許經理，請針對以上的問題加以答覆，指出你的立場，並說明理由。(10%)

四、「王組長，我記得你上次在營業月報中，提到我們新買的兩套電腦，共花了 50 萬。但是，我昨天陪我的孩子到光華市場，發現電腦一台才 5 萬不到就有了。我回來查了一下規格，都是用 Intel 2GHz 的 CPU，能不能解釋一下？」假設你是王組長，請針對以上的問題加以答覆，指出你的立場，並說明理由。(10%)

五、以下有八個名詞。請各用一句話來解釋。請將八個名詞配成八對，並說明你配對的想法。(10%)

SAP R3, HTTP, SET, VPN, Java, Siebel CRM, C++, SMTP

六、請簡要說明下列網路設備的用途和基本運作原理.(15%)
1. 交換器(Switch)
2. 路由器(Router)
3. 防火牆(Firewall)

93年度碩士在職專班入學資訊管理個案分析試題

March 13th, 2004

Instructions: You MUST answer all the questions in both Part I (50%) and Part II (50%).

Part I: Essay Questions:

1. What is the major common theme of the three reports. (10%)

2. From these three reports, propose at least five major concerns for a Chief Information Officer in a Taiwan's high-tech company.   You have to support your arguments with facts, domain knowledge in MIS, and logic arguments. (40%)

Greenspan warns about protectionism

Fed chairman says Americans shouldn't let job losses lead to support for trade restrictions.

March 11, 2004: 3:21 PM EST

WASHINGTON (Reuters) - Federal Reserve Chairman Alan Greenspan urged Americans Thursday not to turn high anxiety about U.S. job losses into support for protectionist trade measures that could hurt rather than help the situation.

In prepared remarks for delivery to the House of Representatives Education Committee, the Fed chief waded into a burgeoning political argument with a strong call for an open trade environment that appeared to echo President Bush's sentiments.

"As history clearly shows, our economy is best served by full and vigorous engagement in the global economy," Greenspan said a day after Bush inveighed against any effort to restrict access to U.S. markets by saying it might hurt U.S. exporters.

Greenspan noted "new protectionist measures" were being proposed, without specifying what he was referring to, and said they could be self-defeating.

"These alleged cures could make make matters worse rather than better," he said. "They would do little to create jobs and if foreigners were to retaliate, we would surely lose jobs."

In the runup to November's presidential elections, Democrats have sought to tag the Bush administration with the blame for a jobless recovery, saying that "outsourcing" of U.S. jobs to cheap-labor countries like India and China could and should be slowed.

1

Sen. John Kerry, who has the Democratic presidential nomination virtually locked up, sought union workers' support on Wednesday by saying Bush tax cuts helped the rich while doing nothing to protect middle-class jobs.

"Everywhere I've been in this campaign, I've met working Americans who are getting the short end of the stick," Kerry said before the AFL-CIO labor federation in Chicago. "Jobs on the run. Wages and salaries dead in the water."

Kerry has also blistered corporate chieftains who shift jobs out of America, referring to "Benedict Arnold CEOs" who lack loyalty to their employees.

In his remarks, Greenspan said job insecurity was "understandably significant" when nearly 2 million Americans have been on the unemployment lines for more than six months.

"New job creation is lagging badly -- the ironic consequence of accelerated gains in productivity," Greenspan said. "In all likelihood, employment will begin to increase more quickly before long as output continues to expand."

He said putting up barriers to foreign trade and guarding jobs might work in the short run but not indefinitely.

"Our standard of living would soon begin to stagnate and perhaps even decline as a consequence," Greenspan suggested.

He said it would be more fruitful to consider reforms in the education system to ensure that workers with needed skills in technology are available. That would have the coincidental benefit of easing some of the pressure that has driven wages of highly skilled employees up while pay for less-skilled workers has been virtually stagnant.

Needs job, moves to India

As U.S. jobs move abroad, more Americans are willing to work overseas.

March 11, 2004: 1:20 PM EST

By Leslie Haggin Geary, CNN/Money staff writer

NEW YORK (CNN/Money) - Robert Dunn first spotted the warning signals three years ago, after the dot-com bust.

That's when his Las Vegas-based company, Creative Healthcare Solutions, which provides Internet technology services to healthcare clients, started seeing jobs being awarded to companies in India and China.

Instead of protesting against the offshoring of work that might have gone to U.S. firms like his, Dunn, 55, has decided to get in on the game. Call it a case of, "If you can't beat them, collaborate with them."

Recently, Dunn found himself contacting head hunters in Bangalore -- southern India's Silicon Valley -- where many information technology (IT) and other white-collar jobs have sprouted in recent years.

His goal is to send himself, and as many of the 20 people who work with him, to India to consult on healthcare IT projects.

The way Dunn sees it, he has 30 years of experience in the field, as do many of his colleagues. They are perfect candidates to oversee and manage work that's now being awarded to Indian workers with less experience in the field.

"It's important for Americans to collaborate more than they have been," Dunn says. "It's unfortunate that everyone has put a stake in the ground that outsourcing is totally bad or totally good. No one's looking in the middle."

Foreigners working in India

As it turns out, Dunn isn't the only American starting to look -- and even move -- abroad for work. And his contention that American workers can still find opportunity in this dawn of offshoring isn't a case of wishful thinking, according to the Indian employers he's contacting.

"We need overseas people to work in our country," agrees Kris Lakshmikanth, founder and CEO of Head Hunters India. "In fashion, health care, biotechnology, there are areas where India needs special knowledge that is available in the U.S. and Europe. The other thing we need are people who can speak different languages, American English, French, German."

Today, experts say, there are about 30,000 foreigners working in India. That's a virtual drop in the bucket for a country that has a population of more than 1 billion -- and far less than the 250,000 foreigners (mostly English) living in India some 60 years ago, just before India's independence in 1947.

But the number of people willing to uproot themselves from homes in New York to become expatriates in New Delhi is expected to grow in coming years. In fact, it's already become easier for Indian employers to attract foreign workers.

Last week, for example, Lakshmikanth received an e-mail from a woman who worked at a call center in Kansas. Could she send a resume?

"I get two to three e-mails from the U.S. and one from Europe a week asking for jobs in India," he says. "It's the future."

The accidental expat

India wasn't something Geri Golemme, a vice president of staffing for a large financial services company, sought out. Her boss asked if she'd be willing to relocate temporarily to Bangalore to help launch the firm's new overseas operations. She'd be home in six weeks.

That was in March 2003, but Golemme's still in India, and won't return to Boston until next year. But she's not unhappy about the delay. On the contrary, Golemme says the India assignment offers abundant professional opportunity plus new adventure.

"When you're part of a startup, even though it's part of a huge organization, you have opportunities you never would have back in the U.S.," she says.

That's not to say uprooting doesn't have challenges. Golemme's roots in Boston are "very deep." She owns a home on Beacon Hill and misses things like going out for salsa dancing.

"I wanted to challenge myself to do something I'm afraid of doing," she said. "When I arrived in India at 2 a.m. and got off the plane, I didn't know what to expect."

Many Americans moving to India are natives who left the subcontinent in search of better opportunity. Now, people like Sam and Neeta Iyengar are making a reverse migration home.

From 1996 to 2001, the Iyengars lived and worked in New Jersey, Sam as owner of a tech company. Neeta's jobs included stints as a radio disc jockey and newspaper reporter. Their daughter, Shloka, was born in the Garden State in 2000, and Sam quips: "Hoboken is known for baseball, Frank Sinatra and Shloka. She's a Jersey girl."

The Iyengars started to feel the pull of home soon after Shloka was born. "We wanted her to be close to her grandparents," says Sam. "They were growing old."

So Sam sold his business and the family moved to Bangalore.

He now works as senior vice president at Sonata Software, a tech company. The job wasn't hard to find: a cup of coffee with an old acquaintance resulted in a job offer.

"Companies here are struggling to be more market- and customer-oriented," Iyengar says. "To have American techies and management come over here will help that process."

Though moving to India may involve a long flight, the actual process is easier than ever. Companies post job listings online, so anyone can send a resume to prospective employers with a click of a button.

Monster.com India has about 3,000 foreigners looking for jobs on its Web site. And headhunters like Lakshmikanth are coming to the United States to talk up the virtues of relocating. Their message is resonating with people like Mahesh Prasad.

Prasad moved to the United States 20 years ago to get an M.B.A. degree. He became an American citizen and has worked in the telecommunications industry around Washington, D.C., where his wife was a transportation lobbyist.

Neither had thought of moving back to India. Then a recruiter called Prasad. Reliance Infocomm, India's No. 1 telecom company, needed people with experience.

In the States, telecom was suffering badly. By comparison, working for Reliance "was a lifetime opportunity," Prasad said.

"We were creating a market with 35 million phones to 250 million phones in a matter of a few years," he explained. "For someone like me, it was an opportunity to do something that won't be repeated."

Answers on Outsourcing

Rory Terry argues against placing blind faith in the doctrine that says outsourcing is good for us.

March 11, 2004: 7:12 PM EST

By Rory L. Terry

NEW YORK (CNN) - A great deal of effort is being expended to convince us all that the outsourcing of jobs under the rubric of free trade is a good thing. I would like to discuss some of these arguments.

Our labor force is not better trained, harder working, or more innovative than our foreign competitors. The argument that we will create new jobs in highly paying fields simply is not true. We

have no comparative advantage or superiority in innovation. To assume that we are inherently more creative than our foreign competitors is both arrogant and naive. We are currently empowering our competition with the resources to innovate equally as well as we. Consider the number of new non-native Ph.D.s that leave our universities each year; consider our low rank in the education of mathematics and the sciences; and consider the large number of international students enrolled in our most difficult technical degree programs at our most prestigious universities.

Most of our best, high-paying jobs can be exported.

1. doctors (even surgeons)
2. mathematicians
3. accountants
4. financial analysts
5. engineers
6. computer programmers
7. architects
8. physicists
9. chemists
10. biologists
11. researchers of all types

Our trading problem is an externality

An externality exists in economics any time there is a separation of costs and benefits, and the decision maker does not have to incur the full cost but receives the full benefits of the decision. The fact is, there is no economic force, no supply and demand equilibrium, no rational decision process of either business or consumer, that will make an externality go away. Classic examples of externalities are when a business dumps toxic waste into a nearby river and the downstream residents incur the costs of cancer. The business is able to lower its costs and pass those lower costs on to its customers, and never pay for the treatment of the cancer patients. We have laws in this country against dumping and pollution because they are externalities -- they require a legislative solution.

Cost reductions and other benefits provide a strong incentive to outsource jobs. A company that decides to move its production overseas cuts its costs in many ways, including the following:

1. Extremely low wage rates
2. The circumvention or avoidance of organized labor
3. No Social Security or Medicare benefit payments
4. No federal or state unemployment tax
5. No health benefits for workers
6. No child labor laws
7. No OSHA or EPA costs or restrictions

8. No worker retirement benefits or pension costs

Besides cutting costs, there are other benefits to exporting jobs, including the following:

1. Tax incentives provided by our government
2. Incentives from foreign governments
3. The creation of new international markets for the company's products (which ultimately empowers the company to turn a deaf ear to this country's problems and influence)
4. The continued benefits of our legal system and the freedoms that we provide

The net effect of all of this is lower costs, higher revenue, higher profits, higher stock prices, bonuses for management, and the creation of wealth for a subclass that benefits from low taxes at the expense of the rest of us.

The costs of the decision to outsource are not borne by the decision maker. As a society and as a country, we experience many costs from outsourcing, including the loss of jobs, social costs, higher costs of raw materials and loss of national sovereignty. Loss of jobs reduces the tax base, creates high unemployment benefit costs, and raises the cost of government retraining programs. Displaced, unemployed workers have higher rates of child and spousal abuse, alcoholism, bankruptcy, divorce, etc. As China and India and other large populations grow, they demand huge quantities of oil, gas, steel and other basic raw materials. These costs are born by all of us -- every time we fill our gas tanks, for example. And as a nation, we lose our ability to make independent decisions that are in our best interest when we are dependent on foreign debt and foreign manufacturing. This is a classic externality. ∎

Rory L. Terry is an associate professor of Finance at Fort Hays State University

Part II: Please refer to the case of Owens-Corning's Enterprise System Struggle to answer the following questions.

Note:

1. 請儘量以中文回答所有問題 (專有名詞不用翻譯)。

2. 請儘量以個案內容來支持您的論點並註明其在文中之位置。例如，Owens-Corning 在導入 SAP R/3 之前進行流程改造。[資料來源：P.1, RC, PRG.1, L.2-3]表示該資料在個案的第一頁，右欄 (Right Column)，第一段 (Paragraph 1)，2-3 行。

Questions:

1. Owens-Corning在導入ERP之前的問題為何(10%)？

2. Owens-Corning的企業策略為何？選擇導入SAP R/3是否一正確的抉擇？請簡述你的理由(10%)。

3. Owens-Corning的ERP專案遭遇的問題可分為幾類？請列舉各類問題，並指出各類問題中最嚴重或影響最深遠的一項並請簡述你的理由(15%)。

4. 如果可以重新來過，設想您是Owens-Corning的專案負責人，您在整個專案管理上會特別重視哪些議題？採取哪些相同與相異的做法？請按照ERP的導入程序依階段順序說明，並務必簡單註明各項工作與個案中的做法相同或相異之處(15%)。

CASE STUDY   *Owens-Corning's Enterprise System Struggle*

In the early 1990s Owens-Corning was a U.S. leader in the production and sale of such building materials as insulation, siding, and roofing, but management wanted the company to grow. The company had only two possible paths to growth: offering a fuller range of building materials, or becoming a global force. To increase its range of products Owens-Corning decided to acquire other companies. To become a global force, management realized the company would need to become a global enterprise that could coordinate the activities of all of its units in many different countries.

Headquartered in Toledo, Ohio, Owens-Corning had been divided along product lines, such as fiberglass insulation, exterior siding, and roofing materials. Each unit operated as a distinct entity with its own set of information systems. (The company had more than 200 archaic, inflexible, and isolated systems.) Each plant had its own product lines, pricing schedules, and trucking carriers. Owens-Corning customers had to place separate telephone calls for each product ordered—one each for siding, roofing, and insulation. The company operated like a collection of autonomous fiefdoms.

Owens-Corning management believed that these problems could be solved by implementing an enterprise system. The company selected enterprise software from SAP AG to serve as the foundation for a broad company overhaul. "The primary intent with SAP was to totally integrate our business systems on a global basis so everyone was operating on the same platform with the same information," said Dennis Sheets, sourcing manager for the insulation and roofing business. Sheets wanted to centralize purchasing. "Prior to SAP," he said, "we were buying widgets all over the world without any consolidated knowledge of how much we were buying and from whom. Now [using SAP's R/3 software] we can find out how many widgets we're using, where they're being purchased, and how much we paid for them, [allowing] us to consolidate the overall acquisition process." Now, he added, "we can . . . make better business decisions and better buys." Sheets expected the company's material and supply inventories to drop by 25 percent as a result.

However, the project to install SAP's enterprise system would ultimately cost Owens-Corning about $100 million and take several years, too expensive and time consuming to be justified only by the reasons given by Sheets. The company hoped that the new system would also enable it to digest acquisitions more easily. Owens-Corning wanted to acquire other companies to expand its product line so it could increase sales from $2.9 billion in 1992 to $5 billion within a few years. That meant that Owens-Corning would have to digest the archaic, inflexible systems from the companies it purchased. If Owens-Corning were to become a global enterprise, it would need a flexible system that would enable the company to access all of its data in an open and consolidated way.

ERP experts point out that simply converting to ERP systems does not solve companies' problems. "Unless a company does a lot of thinking about what its supply chain strategy is and articulating what its business processes are, these tools are going to be of little use," explained Mark Orton, of the New England Supplier Institute in Boston.

Owens-Corning's project began with its insulation group, and those on the project team understood this. They undertook a redesign process before implementing SAP's R/3. They set up cross-functional teams to identify the handoffs and touch points between the various functions. For example, the process that runs from the time the firm needs to buy something through the payment issuance to the supplier touches logistics and accounting. The teams also kept in close contact with suppliers who needed to know what Owens-Corning would require of them. As a result of the redesign, purchasing decisions were moved from the plants up to a regional level, enabling commodity specialists to use their expertise and the leverage of buying for a larger base to improve Owens-Corning's purchasing position.

How did the first ERP project go? During a weekend in March 1997 a team of about 60 people transferred legacy data into the SAP system, and on Monday morning the company went live. When Owens-Corning first went live with SAP, overall productivity and customer service dropped sharply during the first six months. "When you put in something like SAP, it's not a mere systems change," said David Johns, Owens-Corning's director of global development. "You're changing the way people have done their jobs for the past 20 years."

The first problems that surfaced were technical. According to Johns, application response time had increased from seconds before ERP to minutes under the new system. Other technical problems also emerged. For example, Johns said the system wasn't working the way it was supposed to. Johns believes the source of these problems was inadequate testing. The team further tuned the software, and during the next weeks response time reduced to an acceptable level. Slowly the software began operating smoothly.

However, after Owens-Corning fixed some of the technical problems, it saw that this was much bigger than a technology problem. There were problems in the business, problems with the way people's new roles had been defined, communication and change management issues, and business process issues. For example, the SAP system demanded that the entire corporation adopt a single product list and a single price list. Staff members initially resisted. Owens-Corning employees had not been properly trained and they were overwhelmed, resulting in a lot of errors. Johns explained that at Owens-Corning "we underestimated the impact that swapping out all our old systems would have on our people." Users had indeed been properly trained on their own functions, but ERP systems are integrated, and the users did not understand the impact their work was having on other departments.

ERP systems are complex and errors ripple throughout the system. When using the old systems, employees had time to correct data entry mistakes, and if they were not caught, they only affected the local function. However, now that they were using R/3, data that are used by the entire company are immediately updated. Thus, for example, the data flow instantly from sales to purchasing, production, and logistics systems. Johns offered another example. "If you're at a warehouse, and you don't tell the system when a truck is leaving the dock, the truck can still leave,

but the customer will never get an invoice for the goods. Accounting won't find out later because the transaction will never get to them." Such errors can be costly. To motivate users to work with more care, they needed to know how their errors would affect other workers and even company profitability.

To address this problem the company quickly instituted a new training approach. Training now would include information on the larger system and its complexities, so users would understand the impact of their work. Under the new training regimen, all employees were denied access to the system until they had passed a test and became certified. Those who failed the test had to return to training until they could pass it. About 20 percent of Owens-Corning employees never passed the test and had to change jobs. This job shifting was massive and time consuming, causing organizational disruption. Whereas the original project budgeted training for 7 percent of overall costs, training eventually consumed 13 percent of the budget.

Customers also suffered. Owens-Corning had been known for its excellent customer service, but the quality of that service declined sharply after the SAP system went live. Many customers were shocked, and some began turning to other suppliers. Owens-Corning began losing important customers. The company was forced to devote a great deal of personnel time rebuilding relations with its customers while simultaneously repairing both its organization and the software installation.

ERP implementation problems of this type are common. According to Barry Wilderman of the Meta Group, ERP projects often result in a negative return on investment (ROI) for five or more years. Why? Because ERP systems are so complex. The company may not understand all that needs to be done in preparation. Moreover, these systems are expensive, and testing and training often get cut for budgetary reasons. Not only do employees need to become accustomed to new ways of doing business, but customers and suppliers may need to change their business processes as well.

How successful was the whole project? Management believes it has been a success. Johns said, "We made each mistake only once. Each deployment [in the rollout] got better." For instance, "We do a lot more testing now before we go live," he said, "to make sure that all the different pieces of the system work together." Customers now have a single point of contact for all orders. With Owens-Corning's old system, it didn't know what inventory was in stock. Employees would have to check around and get back to the customer. Now the firm can see what inventory is available, when it will be produced, and who is the lowest cost carrier. It can commit to the customer before hanging up the phone. The changes have been massive, with about 10,000 people involved with the reengineering effort.

The ERP system's rollout was completed in 2000. During those years, Owens-Corning acquired and integrated 17 companies, successfully expanding their product offerings. Company sales have reached $5 billion annually. Because of the new system, Owens-Corning has been able to reduce its inventory significantly, while centralizing coordination of various functions and divisions. Lot size and machine allocations have become more efficient. The company can perform production planning and control globally because it has one uniform system with

which to work. The integrated system lets the company leverage common carriers and take advantage of overlapping transportation routes. Managers can use the system to identify its biggest suppliers across the entire company and use that information to negotiate bulk discounts. A customer needs to call only one location to place an order. Factory production managers no longer have to concern themselves with taking customer orders, tracking logistics or after-sales service. Because centralization applied not only to U.S. operations but also to foreign activities, the corporation has been transformed into a truly globalized enterprise.

In the autumn of 2000, Owens-Corning filed for Chapter 11 bankruptcy protection which was caused by a massive liability from the settlement of asbestos-related lawsuits. The company is also facing softening demand for some of its products. Nevertheless, the firm is investing in a series of e-business initiatives designed to optimize its supply chain operations. It is installing Web-based versions of its SAP R/3 enterprise software and a new logistics system that will enable its workers to use the Web to check the status of shipments, interact with the carriers, and input data. These new system projects should improve Owens-Corning's customer relationship management and business collaboration capabilities while further improving data accuracy and reducing operational costs.

Sources: Marc L. Songini, "Owens Corning Pushes E-business Projects Despite Financial Struggles," Computerworld, January 25, 2001; Rajagopal Palaniswamy and Tyler Frank, "Enhancing Manufacturing Performance with ERP Systems," Information Systems Management, Summer 2000; SAP, "Owens Corning Builds Its Internet Future with mySAP.com," September 14, 2000, www.sap.com; Christopher Koch, "From Team Techie to Enterprise Leader," CIO Magazine, October 15, 1999; Tom Stein, "Making ERP Add Up," Information Week, May 24, 1999, and "Key Work: Integration," Information Week, September 22, 1997; Tim Minahan, "Enterprise Resource Planning: Strategies Not Included," Purchasing, July 16, 1998; Janice Fioravante, "ERP Orchestrates Change," Beyond Computing, October 1998; Bruce Caldwell and Tom Stein, "Beyond ERP," Information Week, October 12, 1998; John E. Ettlie, "The ERP Challenge," Automotive Manufacturing & Production, June 1998; and Joseph B. White, Don Clark, and Silvio Ascarelli, "Program of Pain," Wall Street Journal, March 14, 1997.

CASE STUDY QUESTIONS

1. Describe the problems Owens-Corning had with its information systems prior to installing its enterprise system. What management, organization, and technology factors were responsible for those problems?

2. What management, organization, and technology problems did Owens-Corning face in putting their enterprise system into effect?

3. How did implementing an enterprise system change the way Owens-Corning ran its business?

4. Was installing an enterprise system the right solution for Owens-Corning? Explain.

七、何謂網路管理？請列出網路管理的五大功能並予以簡單介紹。(10%)

八、下圖是一般人在 PC 上常見的網路設定畫面，請說明圖中圈起來的兩項設定的意義。 (10%)
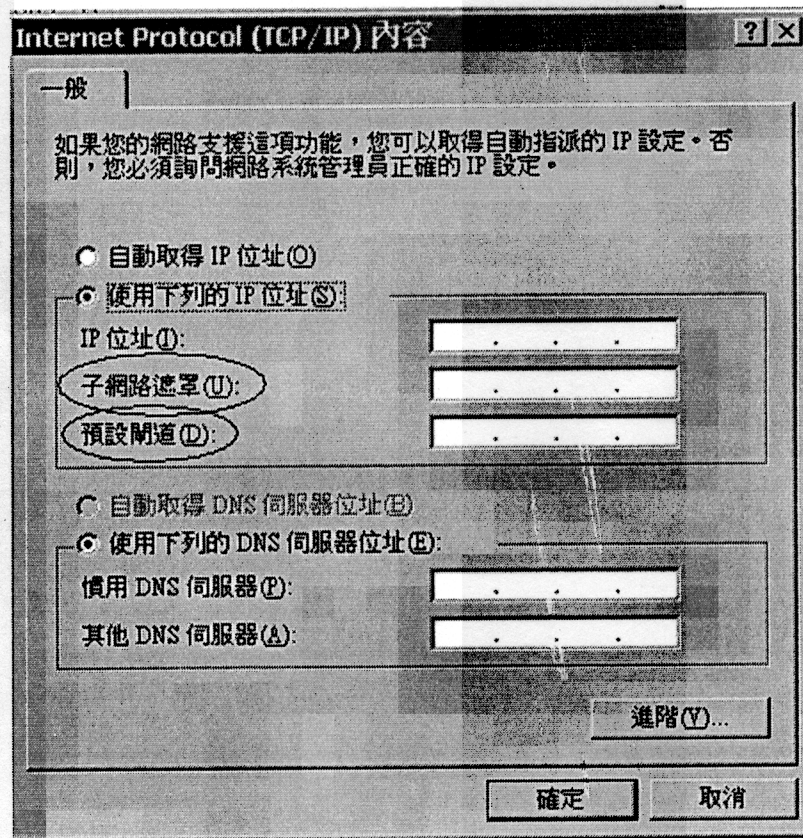
九、 幾年前開始國稅局允許民眾從網路上申報綜合所得稅，但要求民眾在上網申報前先到憑
證管理中心(CA)申請憑證(certificate)， 請問
(1) 國稅局為何要求民眾先申請憑證？(5%)
(2) 憑證本身至少要包括哪些內容？(5%)
(3) 利用這樣的設計可達到哪些網路上的安全保證？(5%)