

# 資訊網路與多媒體研究所

## 資格考試科目：高等計算機網路

2014/10/2

1. (10%) List and compare any two of the available residential access technologies in your city.
2. (15%) Protocol layers
  - a. Please describe the advantages and disadvantages of protocol layering.
  - b. Please elaborate on the main functions of each protocol layer of the Internet.
3. (10%) Bob accesses the Internet at home via a dynamic IP maintained by HiNet. If Bob would like to install a web server at home with the domain name “bobhome.idv.tw”. Please elaborate on how Bob registers and activates the domain name. Note that the provider of “idv.tw” is “TWNIC”, and the authoritative DNS server is “ns1.twnic.net.tw”.
4. (15%) Hierarchical Routing in the Internet.
  - a. Describe how a hierarchical organization of the Internet has made it possible to scale to millions of users.
  - b. Compare inter-AS routing protocol with intra-AS routing protocol in terms of policy and performance.
5. (15%) Client Buffering for Internet phones
  - a. How to adaptively adjust the playout delay caused by client buffering for Internet phones?
  - b. How does receiver determine whether packet is first in a talkspurt?
6. (10%) Please describe and compare two approaches to handle mobility by respectively router and end system.
7. (15%) Message Confidentiality, Message Integrity and Endpoint Authentication.
  - a. Why do we need “message integrity” and “endpoint authentication” if we already have “message confidentiality”?
  - b. What is “Digital Signature”? Why do we need certification authorities for “Digital Signature”?
8. (10%) Why could 802.11 WEP encryption be easily broken? Please explain your reason as detailed as possible.