

Gx1614

OLLSCOIL NA hÉIREANN GAILLIMH
NATIONAL UNIVERSITY OF IRELAND GALWAY

SUMMER EXAMINATIONS 2003

Second Arts University Examination

Technological Frameworks II (CT245)

Professor D. Bell
Professor G. Lyons
Dr. A. Golden

Time allowed: **2 hours**
Answer question 1 and any two others.

1. (a) Describe the ring, star and bus LAN topologies, indicate their mode of operation, and the implications for data security and network redundancy in each case.
(b) What are the principal causes of transmission errors over modern computer networks? Discuss the various approaches used to minimise or to correct the problem of transmission error.
2. 'History repeating itself?' - compare and contrast the technological, economic and sociological trends of both the telegraphic revolution of the 19th century & the computer network revolution of the late 20th century.
3. (a) Outline how the client-server paradigm complemented the evolution of computer networks - illustrate your answer with suitable real-world examples.
(b) Outline the characteristics of the following media in the context of data communications: twisted pair cable; coaxial cable; wireless (radio); fibre optic cable
4. Discuss the origins and development of the Internet, and describe 'its' fundamental operating principles. What is its connection to Internet2?
5. (a) What is meant by the term 'bandwidth' - in terms of bandwidth, why is digital data transmission far more efficient than analogue data transmission?
(b) How do synchronous and asynchronous modes of data transmission differ? Which mode do you think is used in modern mobile phone networks - give reasons for your answer.