

OLLSCOIL NA hÉIREANN
THE NATIONAL UNIVERSITY OF IRELAND, GALWAY

SEMESTER II EXAMINATIONS 1998/99
Spring 1999

CT303 - Networks and Communications

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Time Allowed: **Three Hours**

Answer question 1 and 4 others

1. Describe the layered approach for computer communications. The OSI 7-layer model has its limitations what are these and how are they addressed in other layered approaches?

A computer in Ireland synchronises its clocks with a time server in Germany. Describe a method by which this can be achieved. How accurate would such a synchronisation be?

2. Two computers need to communicate using modems and telephone lines. Describe a protocol that would allow a file to be transferred between the two machines. What are the limitations of your protocol and under what circumstances would you not use it? If there were two intermediate computers (again connected by modems and telephone lines) how would you modify your protocol.
3. Describe and illustrate the use of twisted pair, coaxial, multi-mode and single mode optical fibre cables. A network is intended to send both digital and analogue data (speech and video) what cabling requirements would be needed for such a network and what type of multiplexing would be appropriate?
4. Write short notes on the following
- (a) Ethernet
 - (b) Error Recovery
 - (c) IP Addresses
 - (d) ATM.