

## 1997 Paper 13 Question 3

### Digital Communication I

Explain the terms *ARQ protocol* and *window* of an ARQ protocol. [5 marks]

An ARQ protocol uses a window of 1 kbyte. The protocol is used over a link whose capacity is 1 Mbps. In the absence of transmission errors (or any other loss) determine (a) for a link delay of 100  $\mu$ s, and (b) for a link delay of 250 ms, the time required to transfer each of the following amounts of information over the link:

1 kbyte, 1 Mbyte and 1 Gbyte [12 marks]

State and explain in which of these cases moving to a larger window size will not significantly improve the transfer time. [3 marks]