

2004 Paper 9 Question 7

Digital Communication II

- (a) Multicast Addressing and Routing provides a set of mechanisms for senders to transmit packets that are replicated by the routers so that they can be received by multiple systems. Explain how the basic mechanisms of *IGMP*, *reverse path forwarding* based on the underlying unicast routes, *pruning* and *grafting*, fit together to create this network service. [8 marks]
- (b) How might IP multicast be a risk for a network provider? [2 marks]
- (c) The Resource Reservation Protocol, RSVP, is a *receiver oriented* signalling protocol to establish state in routers for the purposes of classifying packets into flows and scheduling those flows onto routers. Explain what is meant by “receiver oriented”, and how this enables RSVP to be used by a multicast (many-to-many) application. [5 marks]
- (d) Why is TCP not going to work well with multicast? [3 marks]
- (e) What is philosophically odd about using TCP with RSVP? [2 marks]