COMPUTER SCIENCE TRIPOS Part IB – 2016 – Paper 5

5 Computer Networking (AWM)

(a) This question concerns IPv6 notation.   [2 marks]

    (i) Rewrite the following IPv6 address in the most compact form.
        3ffe:1944:0000:0000:0010:0000:0000:d00b

    (ii) In IPv6 notation, what do ::/0 and ::1/128 represent?

(b) Describe five differences between IPv4 and IPv6.   [5 marks]

(c) Describe, giving reasons, how an Internet Service Provider (ISP) may use
their allocated IPv6 addresses to provide address blocks to their (residential)
customers.   [3 marks]

(d) What are the implications of IPv6 for the Network Address Translation (NAT)
gateways and firewalls of residential customers?   [4 marks]

(e) Give one advantage and one disadvantage that Stateless Address Autoconfigu-
ration (SLAAC) has compared to DHCPv4.   [2 marks]

(f) Suggest two features that would be desirable extensions of IPv6. Justify your
answer.   [4 marks]