(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 Autoconfiguration (SLAAC) has compared to DHCPv4. [2 marks]

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