CSCI 4171 assignment 4 Zehao Ba B00732676

1. (a) DV table of router B (d means directly)

|  |  |  |
| --- | --- | --- |
| A | 3 | d |
| B | 0 | d |
| C | 2 | d |
| D | 4 | E |
| E | 1 | d |
| F | 2 | E |

(b) if BE is fails, the DV table of router B

|  |  |  |
| --- | --- | --- |
| A | 3 | d |
| B | 0 | d |
| C | 2 | d |
| D | 5 | A |
| E | 4 | F |
| F | 3 | d |

(c) if EF also fails, the DV table of router B

|  |  |  |
| --- | --- | --- |
| A | 3 | d |
| B | 0 | d |
| C | 2 | d |
| D | 5 | A |
| E | 8 | A |
| F | 3 | d |

1. The link state database is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| LSP1 | LSP2 | LSP3 | LSP4 | LSP5 | LSP6 |
| R1  N1 0  R2 1  R5  3 | R2  N2 0  R1 1  R3 4  R5 2 | R3  N3 0  R2 4  R6 5 | R4  N4 0  R5 6  R6 7 | R5  N5 0  R1 3  R2 2  R4 6  R6 8 | R6  N6  0  R3 5  R4 7  R5 8 |

1. a) 0000 0000 0000 0000 0000 0000 0000 0000

b) 0000 00AA 0000 0000 0000 0000 0000 0000

c) 0000 1234 0000 0000 0000 0000 0000 0003

d) 0123 0000 0000 0000 0000 0000 0001 0002

1. a) Unspecified address

b) mapped address

c) the hexadecimal of 582F is 0101 1000 0010 1111, therefore, the prefix of this address is 010, so the type of IPv6 address is **provider-based unicast address**. Besides, the registry ID is 11000, thus the registration authority is **INTERNIC**.

d) the hexadecimal of 4821 is 0100 1000 0010 0001, therefore, the prefix of this address is 010, so the type of IPv6 address is **provider-based unicast address.** Besides, the registry ID is 01000, thus the registration authority is **RIPE NCC**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| VER  0110 | PRI  0100 | FLOW LABEL  0000 0000 0010 0011 0100 0010 | | |
| PAYLOAD LENGTH  0000 0001 0100 0000 | | | NH  0000 0110 | HOP LIMIT  0100 0000 |
| DESTINATION IPv6 ADDRESS  0101 1000 0010 1111 0001 0010 0011 0100  0000 0000 0000 0000 0000 0000 0000 0000  0000 0000 0000 0000 0000 0000 0000 0000  0000 0000 0000 0000 0010 0010 0010 0010 | | | | |
| SOURCE IPv6 ADDRESS  0100 1000 0010 0001 0000 0000 0000 0000  0000 0000 0000 0000 0000 0000 0000 0000  0000 0000 0000 0000 0000 0000 0000 0000  0000 0000 0001 0100 0000 0000 0010 0010 | | | | |

1. (129)10 = (81)16

(6)10 = (6)16

(12)10 = (C)16

(34)10 = (22)16

Therefore, the IPv6 address is: 0000 0000 0000 0000 0000 0000 FFFF 8106 0C22, convert to hexadecimal colon notation is: ::FFFF:8106:C22

1. The original IPv6 address is: 0000 0000 0000 0000 0000 0000 0000 0001, therefore, the loopback address is ::1