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

2. The link state database is

LSP1	LSP2	LSP3	LSP4	LSP5	LSP6
R_1	R_2	R_3	R_4	R_5	R_6
N_1 0	N_2 0	N_3 0	N_4 0	N_5 0	N_6 0
R_2 1	R_1 1	R_2 4	R_5 6	R_1 3	R_3 5
R_5 3	R_3 4	R_6 5	R_6 7	R_2 2	R_4 7
	R_5 2			R_4 6	R_5 8
				R_6 8	

3. 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
4. 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**.

5.

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			

6. $(129)_{10} = (81)_{16}$
   $(6)_{10} = (6)_{16}$
   $(12)_{10} = (C)_{16}$
   $(34)_{10} = (22)_{16}$
   Therefore, the IPv6 address is: 0000 0000 0000 0000 0000 0000 FFFF 8106 0C22, convert to hexadecimal colon notation is: ::FFFF:8106:C22
7. The original IPv6 address is: 0000 0000 0000 0000 0000 0000 0000 0001, therefore, the loopback address is ::1