Assignment 2

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Course- Computer Network CSE 323

sec- B

1 (a)

i) 500

ii) 700

iii) within time out 2nd acknowledgement is missing in Host A.
In this case It will return 1050.
∴ new acknowledgement in 1050.

iv) window size was 2000 & Leatest acknowledgement 500
∴ last byte number in (2000+500) = 2500.

v) 1450.

1(e)

i) Tcp slow start at RTT → 0-6, 12-16

Tcp congestion avoidance at RTT → 7-11, 17-27, 28-30

ii) packet loss is detected via both timeout and triple duplicate Ackn.

iii) ss threshold change → 7 sec

new ssthresh value → 32.

next ss thresh change → 11 sec

new ssthresh value → 16

next ss thresh change → 17 sec

new ssthresh value → 8

next ss thresh change → 28 sec

new ssthresh value → 9

2-(a)

(ii)

R_2 → Network B

here,

$2020 - \underset{\text{fragment 1}}{500} = 1520$

offset field = 0

$\therefore \quad 1520 - \underset{f:2}{500} = 1020$

o.f = 62.5

$\therefore \quad 1020 - \underset{f:3}{500} = 520$

o.f = 125

$\therefore \quad 520 - \underset{f:4}{500} = \underset{f:5}{20}$

o.f = 187 o.f = 250

Now,

f-1 : 500 + 20
= 520 byte, offset = 0

[f = fragment]

f-2 : 500 + 20
= 520 byte, offset = 62.5

f-3 : 500 + 20
= 520 byte, offset = 125

f-4 : 500 + 20 → offset = 187
= 520 byte

f-5 : 20 + 20 → offset = 250.
= 40 byte

2 -(a)

i) MTU , A = 1500 byte

Data = (1500 - 20)

= 1480 byte

MTU, B = 520 byte

Data = (520 - 20)

= 520 byte

Now, Tep segment ⇒ (2000 + 20) ⇒ 2020 byte

Now, offsetD,

Tep segment - fragment 1

2020 - 1480 = 540

offsetfield = 0 offsetfield = 185

∴ fragment 1 = 1480 + 20

= 1500 , offset = 0

∴ fragment 2 = 540 + 20

= 560 offset = 185

Ans

2 (b)

i) Destination Ip = 128.96.39.00001010

here, first 24 bits & 4th octate first bit matches with 1st entry in the routing table so the next hop will be port 0.

ii) Destination Ip = 128.96.40.00001100

here, first 24 bits & 4th octet bit matches with 3rd entry in the routing table. So next hop will be → R_2

iii) Destination Ip = 128.96.40.10010111, matches none of the entries in the routing table, So next hop → R_4

iv) Destination Ip = 192.4.153.01011010, matches none of the entries in the routing table, So next hop → R_4

2 (c)

Step 1: Sourrree : 10.0.1.18 ; Destination : 130, 210, 77, 67

Step 2: Sourree : 135.122.205.207 ; Destination : 130.210.77.67

Step 3: Sourree : 130.210.77.67 ; Destination : 135.122.205.207

Step 4: Sourree : 130.210.77.67 ; Destination : 10.0.1.18

2(d)

i) Ipv6

ii) no

iii) Ipv4

iv) 116.4.105.237

3 - (a)

Step1 : dijkstra's table

N'	D(A) p(A)	D(B) p(B)	D(D) p(D)	D(E) p(E)	D(F) p(F)	D(G) p(G)
C	1,e	2,e	5,e	∞	8,e	∞
eA		2,e	5,e	6,A	8,e	∞
eAB			5,e	5,B	8,e	∞
eABD				5,B	8,e	∞
eABDE					6,E	10,E
eABDEF						10,E
eABDEFG						

For current node A → pomible next node B, E

$D(B) = \min\{D(B), D(A)+e(A,B)\} = 2,e$

$D(E) = \min\{D(E), D(A)+e(A,E)\} = 6,A$

for current node B → pomible next node D, E

$D(D) = \min\{D(D), D(B)+e(B,D)\} = 5,e$

$D(E) = \min\{D(E), D(B)+e(B,E)\} = 5,B$

for, current node D → pomible next node E, F

$D(E) = \min\{D(E), D(D)+e(D,E)\} = 5,B$

$D(A) = \min\{D(A), D(D)+e(D,F)\} = 8,e$

For, current node E → pomible nodes F, G

$D(F) = \min\{D(F), D(E)+e(E,F)\} = 6,E$

$D(G) = \min\{D(G), D(E)+e(E,G)\} = 10,E$

For, current node F → pomible next node ϕ

Step-2 : Shortest path.

Dest	Dest → Src	Src → Dst
A	A → e	e → A
B	B → e	e → B
D	D → e	e → D
E	E → B → e	e → B → E
f	F → E → B → e	C → B → E → F
G	G → E → B → e	e → B → E → F

Step 3: forwarding table

Dest	Next hop
A	A
B	B
[illegible]	D
D	D
E	B
F	B
G	B

3(b)

First Step: initialize distance vector

	A	B	C	D	E	F	G
A	0	3	1	∞	5	∞	∞
B	3	0	2	3	3	∞	∞
C	1	2	0	5	∞	8	∞
D	∞	3	5	0	4	4	∞
E	5	3	∞	4	0	1	5
F	∞	∞	8	4	1	0	∞
G	∞	∞	∞	∞	5	∞	0

Second Step: Distance vector for node D

$D(A) = 6$

$D(b) = 3$

$D(e) = 5$

$D(e) = 4$

$D(f) = 4$

$D(g) = 9$