THE UNIVERSITY OF DODOMA

COLLEGE OF INFORMATICS AND VIRTUAL EDUCATION

DEPARTMENT OF COMPUTER SCIENCE.

ROUTING PROTOCOL.

Instructor: Mr. Chanhemo.

Course: Bcs.Computer Science.

RegNo: T/UDOM/2017/02589.

1.

```
Packet Tracer PC Command Line 1.0
C:\>ping 2.2.2.12

Pinging 2.2.2.12 with 32 bytes of data:

Reply from 2.2.2.12: bytes=32 time=11ms TTL=124
Reply from 2.2.2.12: bytes=32 time=25ms TTL=124
Reply from 2.2.2.12: bytes=32 time=26ms TTL=124
Reply from 2.2.2.12: bytes=32 time=12ms TTL=124

Ping statistics for 2.2.2.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 26ms, Average = 18ms

C:\>
```

……
……

2. Display the content of routing table for all routers and attach to your report

```
Gateway of last resort is 3.3.3.10 to network 0.0.0.0

     1.0.0.0/24 is subnetted, 1 subnets
O       1.1.1.0/24 [110/65] via 3.3.3.1, 00:03:11, Serial0/1/1
     2.0.0.0/24 is subnetted, 1 subnets
O       2.2.2.0/24 [110/65] via 3.3.3.6, 00:03:11, Serial0/1/0
     3.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C       3.3.3.0/30 is directly connected, Serial0/1/1
L       3.3.3.2/32 is directly connected, Serial0/1/1
C       3.3.3.4/30 is directly connected, Serial0/1/0
L       3.3.3.5/32 is directly connected, Serial0/1/0
C       3.3.3.8/30 is directly connected, Serial0/0/0
L       3.3.3.9/32 is directly connected, Serial0/0/0
```

Router 2 routing table

```
Gateway of last resort is 3.3.3.9 to network 0.0.0.0

     3.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C       3.3.3.8/30 is directly connected, Serial0/0/0
L       3.3.3.10/32 is directly connected, Serial0/0/0
C       3.3.3.12/30 is directly connected, Serial0/1/0
L       3.3.3.13/32 is directly connected, Serial0/1/0
C       3.3.3.16/30 is directly connected, Serial0/1/1
L       3.3.3.17/32 is directly connected, Serial0/1/1
D    4.0.0.0/8 [90/2170112] via 3.3.3.14, 00:04:46, Serial0/1/0
D    5.0.0.0/8 [90/2170112] via 3.3.3.18, 00:04:46, Serial0/1/1
S*   0.0.0.0/0 [1/0] via 3.3.3.9
```

Router 3routing table

```
Gateway of last resort is 3.3.3.2 to network 0.0.0.0

     1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       1.1.1.0/24 is directly connected, GigabitEthernet0/0
L       1.1.1.1/32 is directly connected, GigabitEthernet0/0
     2.0.0.0/24 is subnetted, 1 subnets
O       2.2.2.0/24 [110/129] via 3.3.3.2, 00:00:42, Serial0/1/0
     3.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       3.3.3.0/30 is directly connected, Serial0/1/0
L       3.3.3.1/32 is directly connected, Serial0/1/0
O       3.3.3.4/30 [110/128] via 3.3.3.2, 00:00:42, Serial0/1/0
O       3.3.3.8/30 [110/128] via 3.3.3.2, 00:00:42, Serial0/1/0
O*E2 0.0.0.0/0 [110/1] via 3.3.3.2, 00:00:42, Serial0/1/0
```

Router 4 routing table

```
Gateway of last resort is 3.3.3.5 to network 0.0.0.0

     1.0.0.0/24 is subnetted, 1 subnets
O       1.1.1.0/24 [110/129] via 3.3.3.5, 00:02:12, Serial0/1/0
     2.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       2.2.2.0/24 is directly connected, GigabitEthernet0/0
L       2.2.2.1/32 is directly connected, GigabitEthernet0/0
     3.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
O       3.3.3.0/30 [110/128] via 3.3.3.5, 00:02:12, Serial0/1/0
C       3.3.3.4/30 is directly connected, Serial0/1/0
L       3.3.3.6/32 is directly connected, Serial0/1/0
O       3.3.3.8/30 [110/128] via 3.3.3.5, 00:02:12, Serial0/1/0
O*E2 0.0.0.0/0 [110/1] via 3.3.3.5, 00:02:12, Serial0/1/0
```

Router 5 routing table

```
Gateway of last resort is 3.3.3.13 to network 0.0.0.0

     3.0.0.0/8 is variably subnetted, 5 subnets, 3 masks
D       3.0.0.0/8 is a summary, 00:05:38, Null0
D       3.3.3.8/30 [90/2681856] via 3.3.3.13, 00:05:38, Serial0/1/0
C       3.3.3.12/30 is directly connected, Serial0/1/0
L       3.3.3.14/32 is directly connected, Serial0/1/0
D       3.3.3.16/30 [90/2681856] via 3.3.3.13, 00:05:38, Serial0/1/0
     4.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D       4.0.0.0/8 is a summary, 00:05:38, Null0
C       4.4.4.0/24 is directly connected, GigabitEthernet0/0
L       4.4.4.1/32 is directly connected, GigabitEthernet0/0
D    5.0.0.0/8 [90/2682112] via 3.3.3.13, 00:05:38, Serial0/1/0
D*EX 0.0.0.0/0 [170/7289856] via 3.3.3.13, 00:05:38, Serial0/1/0
```

Router 6 routing table

```
Gateway of last resort is 3.3.3.17 to network 0.0.0.0

     3.0.0.0/8 is variably subnetted, 5 subnets, 3 masks
D       3.0.0.0/8 is a summary, 00:07:28, Null0
D       3.3.3.8/30 [90/2681856] via 3.3.3.17, 00:07:28, Serial0/1/0
D       3.3.3.12/30 [90/2681856] via 3.3.3.17, 00:07:28, Serial0/1/0
C       3.3.3.16/30 is directly connected, Serial0/1/0
L       3.3.3.18/32 is directly connected, Serial0/1/0
D    4.0.0.0/8 [90/26821l2] via 3.3.3.17, 00:07:28, Serial0/1/0
     5.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D       5.0.0.0/8 is a summary, 00:07:28, Null0
C       5.5.5.0/24 is directly connected, GigabitEthernet0/0
L       5.5.5.1/32 is directly connected, GigabitEthernet0/0
```

3. Display running configuration for R1 and R2

```
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 description T_UDOM_02589_2017
 ip address 3.3.3.9 255.255.255.252
 clock rate 2000000
!
interface Serial0/0/1
 no ip address
 clock rate 2000000
```

```
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 description T_UDOM_02589_2017
 ip address 3.3.3.10 255.255.255.252
!
interface Serial0/0/1
 no ip address
 --More--
```

4. A packet with destination IP address 3.3.3.75 reaches R6, what action will be executed by R4?

……
……

```
     1.0.0.0/24 is subnetted, 1 subnets
O       1.1.1.0/24 [110/129] via 3.3.3.5, 00:17:45, Serial0/1/0
     2.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       2.2.2.0/24 is directly connected, GigabitEthernet0/0
L       2.2.2.1/32 is directly connected, GigabitEthernet0/0
     3.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
O       3.3.3.0/30 [110/128] via 3.3.3.5, 00:17:45, Serial0/1/0
C       3.3.3.4/30 is directly connected, Serial0/1/0
L       3.3.3.6/32 is directly connected, Serial0/1/0
O       3.3.3.8/30 [110/128] via 3.3.3.5, 00:17:45, Serial0/1/0
O*E2 0.0.0.0/0 [110/1] via 3.3.3.5, 00:17:45, Serial0/1/0
```

5. A packet with destination IP address 2.2.2.255 reaches R1, what next hop IP address will be used by R1 to forward the packet to its destination?

……

6. A packet with destination IP address 1.1.1.1 reaches R2, what is the cost of the route that R2 will use to forward this packet to? What interface R2 will use to forward this packet to its destination?

……..

```
Gateway of last resort is 3.3.3.9 to network 0.0.0.0

     3.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C       3.3.3.8/30 is directly connected, Serial0/0/0
L       3.3.3.10/32 is directly connected, Serial0/0/0
C       3.3.3.12/30 is directly connected, Serial0/1/0
L       3.3.3.13/32 is directly connected, Serial0/1/0
C       3.3.3.16/30 is directly connected, Serial0/1/1
L       3.3.3.17/32 is directly connected, Serial0/1/1
D    4.0.0.0/8 [90/2172416] via 3.3.3.14, 00:22:57, Serial0/1/0
D    5.0.0.0/8 [90/2172416] via 3.3.3.18, 00:22:57, Serial0/1/1
S*   0.0.0.0/0 [1/0] via 3.3.3.9

Router#
```

7. Give at least four differences between OSPF and EIGRP

8. How many remote networks does each router have? [Your answer must be supported by the screen shot shown in (2)]

……
……

9. From each router list down the network(s) with highest cost

……
……

10. After all configurations, R4 has an entry on its routing table denoted by O*E2. What does this indicate?

……
……..

11. After all configurations, R6 has an entry on its routing table denoted by D*EX. What does this indicate?

……
……
……

12. By performing configurations in (h) and (I) above, what serious problem might occur in this network? What best solution will you propose to avoid the problem?

……
……
……