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course :- computer networks for
communication.

course
code :- CSA0735.

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unit :- III.

Assignment
unit - III

Scenagio :-

A university uses OSPF (open shortest path first) to route between buildings.

Parameters:-

LSA(s) link-state Advertisements):-

Used by OSPF routers to exchange information about the network topology.

LSAs help routers build a complete map of the network.

Area 0 Backbone:-

The central area in an OSPF network.

All other areas must connect to Area 0 for proper routing.

Route Recalculation:-

When a network change occurs (e.g link failure), OSPF recalculates routes using Dijkstra's shortest path first algorithm.

Questions:-

If 6 routers each send 10 LSAs, how many total?

Given.

$$\text{routers} = 6$$

$$\text{each send} = 10 \text{ LSAs}$$

$$\text{Total} = \text{routers} \times \text{each send (LSAs)}$$

$$= 6 \times 10$$

$$= 60 \text{ LSAs}$$

Total LSAs are 60.

What happens if a link fails between

2 routers?

The routers detect the link failure

+ A new LSA is generated and flooded

to all OSPF neighbors.

* Each router receives the update and recalculates the routing table using

Dijkstra's algorithm.

The OSPF network converges to reflect the new topology.

How does area configuration reduce updates?

OSPF areas (like Area 0) limit the scope of LSA flooding.

Changes in one area do not affect areas directly, reducing unnecessary updates.

Routers use summary LSAs to represent entire areas, minimizing routing overhead and CPU load.

[Building A]

| R₁

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|

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|

|

[Building B]

----- (Area 0) ----- | [Backbone network]

R₂

R₃

R₄

[Building C]