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Subject: Network Management in Telecommunication

Q3) LAN emulation

- Ans
- 1) ATM provides reliable data transmission along with higher speed; these features can also find its utility in a LAN architecture.
 - 2) LAN Emulation is a software protocol allowing ATM networks to behave like local area networks, running existing applications unchanged. It also allows connectivity between ATM networks and existing LANs.
 - 3) LANs can have high data rates upto 1 Gbps, but this predominantly makes use of IP for transmission. This makes difficult to interface them with technologies like SONET and SDH which predominantly makes use of fiber optics.
 - 4) ATM-LAN emulation provides a solution to this problem. LANE allows ATM network to run LAN applications without any modifications.
 - 5) Some advantages that LANE offers to users are high-speed LANs is a major ATM application.
 - 6) LAN emulation is being defined by the ATM forum in the LAN emulation workgroup.

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P.2)

Given: Total number of workstation = 24000

Total message size (both sides) = 128 bytes
= 128 * 8

10Mbps LAN with 30% efficiency implies
total available bandwidth is 3Mbps

Maximum possible overhead of only
5% is allowed, the available
bandwidth for management traffic

$$= 3 \times \frac{5}{100} = 0.15 \text{ Mbps}$$

Time period to complete ping cycle

$$= \frac{128 \times 8 \times 24000}{150000}$$

$$= 163.84 \text{ sec}$$

Ping frequency for each machine

$$= \frac{1}{163.84} = 0.0061$$