TRAFFIC SHAPE Formule:

A few major terms are used with traffic shaping: Tc, Bc, Be, CIR, and Shaping Rate.

- The Tc is the interval (measured in milliseconds) over which the Bc (Normal Burst) can be sent.

- The Bc is the amount of traffic that can be sent during the Tc interval.

- The Be (Excess Burst) is the number of bits beyond the Bc that can be sent after a period of inactivity.

- The CIR is the Committed Information Rate, which defines the rate of a circuit according to a business contract.

- The Shaping Rate is used to shape the amount of traffic that is sent over an interface; traffic that exceeds the rate is allowed to buffer (limited) and is sent out at this rate.

The formula used to calculate the Shaping Rate when using the **shape peak** command is:

Shaping Rate = Configured_Rate * {1 + (Be/Bc)}.

Configured Rate = Shape Peak

The formula used by the traffic shaper is:

Tc = Bc / Shaped Rate

Bc = Tc * Shaped Rate

Shaped Rate = Shaping Rate

Shape average = value shaping rate + value Bc

The default Bc used when implementing a Single-Rate, Two-Color policer is:

 CIR/32, which equals 4000 bytes.

The policing method Single-Rate, Two-Color specifies a method that utilizes a single traffic rate with no excess burst. This gives traffic two categories in which to be placed: conforming *or* exceeding.

Example:

A router is connected to an HDLC circuit via a T1 physical interface. The SLA for this link only allows for a sustained rate of 768 kb/s. Bursts are allowed for up to 30 seconds at up to line rate, with a window Tc of 125 ms.

What should the Be and Be setting be when using generic traffic shaping?

A. Be = 46320000 , Bc = 96000
B. Be = 768000 Bc = 32000
C. Be = 128000 Bc = 7680
D. Be = 0 Bc = 96000

Answer: A

Explanation

(Notice that the sustained rate is the CIR = 768kb/s)

From the formula Tc=Bc/CIR => Bc = Tc * CIR = 125ms * 768kb/s = 96000 bits
(In fact you should calculate with the default units, that is 0.125s * 768000b/s)

The T1 speed is 1.544 Mbps = 1544000bps. "Bursts are allowed for up to 30 seconds at up to line rate" ->Be = 1544000bps * 30 = 46320000 bits.

Terminologies: The term **CIR** refers to the traffic rate for a VC based on a business contract.
Tc is a static time interval, set by the shaper.
Committed burst (Bc) is the number of bits that can be sent in each Tc.
Be is the excess burst size, in bits. This is the number of bits beyond Bc that can be sent after a period of inactivity.