**ASSIGN 5 TE303 - ADS16A00084Y**

A communications satellite is an artificial satellite that relays and amplifies radio telecommunications signals through a transponder. It basically creates a communication channel between a source transmitter and a receiver at different locations on earth. Communications satellites are used for television, telephone, radio, internet, and military applications. It is the distribution of multimedia content or broadcast signals over or through a satellite network.

From the diagram;

A terrestrial communication system, facilitating audio, video, data, and any other type of communication within a local geographical area, and with an extremely large number of communication channels being made available simultaneously at a very low cost.

An earth station is a collection of equipment installed on the earth's surface that enables communications over one or more satellites. Earth stations are part of a satellite network's ground segment, which consists of all earth stations operating in a satellite system.

Steps:

* An uplink earth station or other ground equipment transmits the desired signal to the satellite
* The satellite receives and processes the incoming signal by changing the frequency and amplifying it
* The satellite transmits the signal back to earth
* The ground equipment receives the signal

Let's say the user uses a satellite television;

A satellite receiver decodes the incoming signals and presents them to the user through standard television. In the case of satellite television, the signals coming in are encoded and digitally compressed so as to minimize the size and so that the provider can bundle more channels into the signal. The user can then select which channel to decode and view. The compression used for satellite digital TV is often MPEG compression so that quality can be retained.

The broadcast signals usually originate from the TV station and then are sent via a satellite uplink (uploaded) to a geo-stationary artificial satellite for redistribution or retransmission to other predetermined geographic locations through an open or a secure channel. Downlinks are then received by base stations such as small home satellite dishes or by base stations owned by the local cable network for redistribution to their customers.