**5G WIRELESS TECHNOLOGY**

The world has seen a lot of changes in the realm of communication. Today we no more use landlines. Everyone possesses a mobile phone that functions 24X7. Our handsets not only keep us connected with the world at large but also serve the purpose of entertainment gadget. From 1G to 2.5G and from 3G to 5G this world of telecommunications has seen a number of improvements along with improved performance with every passing day. The 5th generation is envisaged to be a complete network for wireless mobile internet, which has the capability to offer services for accommodating the application potential requirements without suffering the quality. The ultimate goal of 5G is to design a real wireless world, that is free from obstacles of the earlier generations. The global cell phone is around the corner. The global mobile phone will hit the localities who can call and access from one country to another’s local phone with this new technology. The way in which people are communicating will altogether upgrade. 5G technology has a bright future because it can handle best technologies and offer priceless handset to their customers. 5G Technologies have an extraordinary capability to support Software and Consultancy.

5G technology is the fifth generation of the Internet and is considered the fastest and most secure means of data transfer so far. Its speed will be more than about 1 Gbps, which is about ten times more than a normal wireless mobile phone. The 5G is much more powerful than its previous generations due to its high-speed data transfer and low latency.

The transmission of the 5G network will not require any type of tower, but rather the transmission of signals through small cell stations in rooftops or electric poles.  These small cells are significantly more important because of the millimeter-wave spectrum. Various state-of-the-art technologies under 5 G technologies, such as MIMO, TDD, etc. will be used.  Multiple Input Multiple Output (MIMO) technology will provide downloading capability with an intensity of around 952 Mbps.

**Evolution from First Generation to Fifth Generation**

* 1G Technology was launched in the 1980s and worked on analog radio signals and supported only voice calls.
* 2G Technology was launched in the 1990s which uses digital radio signals and supported both voice and data transmission with a Bandwidth of 64 Kbps.
* 3G Technology was launched in the 2000s with a speed of 1 Mbps to 2 Mbps and it has the ability to transmit telephone signals including digitized voice, video calls ad conferencing.
* 4G Technology was launched in 2009 with a peak speed of 100 Mbps to 1 Gbps and it also enables 3D virtual reality.

**Advantages and Challenges**

Some of the important advantages of 5G technology are:-

* A committee on 5G technology was formed in India, which in its recommendation for an increase in the amount of spectrum available and a decrease in the value of spectrum in the initial allocation of 5G spectrum.
* 5G technology is expected to offer advanced mobile broadband that can meet high coverage requirements.
* If the 5G technology is successfully implemented in India, it will revolutionize the Indian telecom sector.
* This technology will accelerate the Digital India program of the Government of India, Make in India, Ease of Doing Business. Apart from this, New India Mission, Smart City Project, Bharat Net Project, etc. can be made successful.
* The high data speed of the 5G Network might help cloud systems steam software updates, music, and navigation data.
* 5G will also facilitate the ecosystem for the Internet of Things.
* The 5G technology, called a fifth generation of the Internet, can be used to increase India’s GDP, digitize the employment generation economy, etc.
* 5G Technology will help in the country’s digital growth that will result in the rise of GDP and employment generation in the country.
* 5G technology will help to incorporate Artificial Intelligence into our daily lives.
* It is estimated that 5G technology will boost the digital economy in India, helping India achieve a $ 5 trillion economy by 2024.

Some of the challenges of the 5G technology are:-

* According to information and communications technology experts, India lacks the appropriate infrastructure for 5G, and developing it is a challenge in itself.
* The proposed speed of 5G is difficult considering the inefficient technical support in most parts of the world.
* 5G connection is more expensive than the currently available network. 5G requires investors to invest more than $ 2000 billion per year, which discourages investors.
* Reliance Jio’s entry into the Indian telecom sector in 2016 has also led to a decline in revenue from other sector operators.
* The switch from 4G to 5G will be infrastructure intensive & the development of infrastructure for 5G is very expensive.

**Conclusion**

It is true that there are challenges related to infrastructure, investment, and health-related to 5G technology in India right now, but the government should address these challenges as soon as possible and implement this technology in India. With the introduction of 5G technologies in India, economic, socio-strategic, etc., will bring dynamism in all areas and the development of the country will be further strengthened.