5G signal now available on Mount Everest peak

Part of: GS-III- S&T (PT-MAINS-PERSONALITY TEST)

Climbers to Mount Everest from the Chinese side can now enjoy high-speed 5G coverage after the world’s highest-altitude base station started operation in the remote Himalayan region of Tibet.

1. Built at an altitude of 6,500 metres, the base station which became operational, is located at the advance base camp of Mount Everest, the world’s highest peak, according to state-run telecom giant China Mobile.
2. The base station, along with another two that were previously built at altitudes of 5,300 metres and 5,800 metres respectively, realises the full coverage of 5G signal of Mount Everest on the north ridge as well as the summit.
3. The cost of building five 5G stations in the extremely difficult terrain could reach 10 million yuan (USD 1.42 million). The 5G stations will help mountaineers from across the world communicate better. It could also prove to be helpful for rescuing workers and researcher.
4. Located at the China-Nepal border, Mount Everest has an altitude of more than 8,840 metres, with its north part located in Xigaze prefecture of Tibet Autonomous Region.

About 5G

5G is the fifth generation of wireless communication technologies. In addition to faster speeds, 5G offers greater bandwidth and network capacity, paving the way for a future of driverless cars, more connected devices and high-definition connections for virtual meetings and telemedicine.

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Union Communications Minister announced that the government will be holding auction for spectrum airwaves that will be used to offer 5G or fifth-generation services, in the current calendar year.

While some countries such as South Korea and the U.S. have begun rolling out commercial 5G services, begin trial for these even as the government is targeting 2020 as the launch year for 5G in the country.

Mr. Prasad said the government plans to start 5G trials in the next 100 days or by mid-September.

The socio economics impact of 5G has yet to be analysed. However, it will make significant impact in area where wireless transmission is inevitable.

What is 5G?

It is the next generation cellular technology that will provide faster and more reliable communication with ultra-low latency.

Latency is the amount of time data takes to travel between its source and destination.

A government panel report points out that with 5G, the peak network data speeds are expected to be in the range of 2-20 Gigabit per second (Gbps).
This is in contrast to 4G link speeds in averaging 6-7 Megabit per second (Mbps) in India as compared to 25 Mbps in advanced countries.

Who does it benefit?

With 5G technology, consumers will be able to download data heavy content such as 8K movies and graphics in just a few seconds. But once 5G becomes commercial, users will be required to change their current devices in favour of 5G-enabled ones.

However, it is likely that the primary use of the technology will go beyond delivery of services on personal mobile devices.

A government panel on 5G says the technology will extend the use of wireless technologies for the first time across completely new sectors of the economy from industrial to commercial, educational, health care, agriculture and social sectors.

The report also stresses that even after the entry of 5G into the Indian networks, the earlier generation mobile technologies (2G, 3G and 4G) will continue to remain in use and that it may take 10 or more years to phase them out.

What about spectrum auction?

The government plans to undertake spectrum auction in the current calendar year.

In a first step towards preparing for these auctions, the Telecom Regulatory Authority of India (TRAI) had last year recommended that entire available spectrum be put to auction in the forthcoming sale.

As a result, a total of 8,644 MHz of spectrum will be put on sale, making it the largest ever such auction. The price of the total airwaves on sale is about ₹4.9 lakh crore.

Spectrum auctions are a major revenue earner for the government. In the last auction, held in October 2016, it fetched the government over ₹65,000 crore. However, 60% of the spectrum remained unsold.

For 5G spectrum, i.e. the spectrum in 3300-3600 MHz which will be put out for bids for the first time, the regulator has recommended a pan-India reserve price of about ₹492 crore per MHz for unpaired spectrum.

Concerns:

Telecom industry body Cellular Operators Association of India (COAI) has also expressed concerns about the financial health of the sector amid intense competition and recent phase of consolidation. Currently, the cumulative debt is pegged at around ₹7 lakh crore.

The COAI has also pointed out that 5G is overpriced by at least 30% to 40% compared to international standards and auction in other markets such as South Korea and the U.S.

In previous auctions, the government saw no takers for the 700 MHz spectrum, which is used to offer high-speed 4G services and was put on sale for the first time, mainly due to the high reserve price.

In its recommendations now, the sectoral regulator has said that the prices be reduced by about 43%. The recommended pan-India reserve price for 700 MHz now is ₹6,538 crore per MHz as opposed to ₹11,500 crore last time.

Various field Applications of 5G Network:
1. One of the primary applications of 5G will be implementation of sensor-embedded network that will allow real-time relay of information across fields such as manufacturing, consumer durables and agriculture.

2. 5G can also help make transport infrastructure more efficient by making it smart. 5G will enable vehicle and vehicle-to-infrastructure communication, making driverless cars, among other things, a reality.

3. Low latency is one of the most important features of 5G technology which is significant for mission critical applications. 5G networks are capable of latency less than a millisecond.

4. 5G will be using new radio millimetre waves for transmission. It has much higher bandwidth compared to lower LTE bands and capable of huge data rate.

5. 5G is the most efficient candidate for Internet of Things due to its flexibility, unused spectrum availability, and cost solutions for deployment.

6. IoT applications will collect huge amount of data from millions of devices and sensors. It requires an efficient network for data collection, processing, transmission, control and real-time analytics.

7. Healthcare industry has to integrate all the operation with use of a powerful network.

8. 5G will power healthcare industry with smart medical devices, Internet of medical things, smart analytics, and high definition medical imaging technologies.

Conclusion:

5G is expected to form the backbone of emerging technologies such as the Internet of Things (IoT) and machine communications, thereby supporting a much larger range of applications and services, including driverless vehicles, tele-surgery and real time data analytics.

The ultra-low latency offered by 5G makes the technology desirable for such use cases.

5G is one of the most sophisticated wireless technologies we have ever developed so far. It will revolutionize the entire area where wireless network can be used for efficient and secure communication.

It is widely accepted that 5G’s value for India may be even higher than in advanced countries because of investments in physical infrastructure.

5G may offer ‘leapfrog’ opportunities by providing ‘smart infrastructure’ that offers lower infrastructure delivery.