

1. What is 5G technology? Explain their need and benefits also discuss the challenges faced by it.

GS III- Technology, Economic Development, Bio diversity, Environment, Security and Disaster Management.

Topic- Science and Technology - Developments and their Applications and effects in everyday life Achievements of Indians in science & Technology; Indigenization of Technology and Developing New Technology.

Structure of Answer:

- ✚ Introduction (say what you understand in 5G Technology).
- ✚ What is 5G Technology?
- ✚ Why it is needed? (Explain the benefits with some example).
- ✚ What are the challenges faced by it?
- ✚ How to overcome the challenges?
- ✚ Conclusion.

Key points:

- ✚ **About:** It is the next generation cellular technology that will provide faster and more reliable communication with ultra-low latency.
- ✚ It will revolutionize the mobile experience; consumers will be able to download data heavy content such as 8K movies and games with better 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.
- ✚ **Benefits:** 5G will provide download speed of 1 Gbps, which is at least 100 times the existing data speeds.
- ✚ It also increases energy efficiency and offers more stable network connections.
- ✚ 5G will have a wider area in the frequency spectrum (range of frequencies) that will ensure no network congestion.
- ✚ In addition, it will also ensure connectivity to a full circle i.e. everything is connected to every other thing.
- ✚ The standards for the usage of 5G are defined and driven by 3rd Generation Partnership Project.

Way Forward:

- ✚ Recently approved, National Electronics Policy 2019 aims to position India as a global hub for Electronics System Design and Manufacturing and promotes early stage Start-ups in emerging technology areas such as 5G, IoT, Artificial Intelligence etc.
- ✚ Bharat Net project aims to provide digital infrastructure on a non-discriminatory basis by an affordable broadband connectivity of 2 Mbps to 20 Mbps for all households.
- ✚ Indian government also initiated measures to introduce 5G technology via the National Telecom Policy (NTP), which aims to reach 100% tele density, high-speed internet highways and delivery of citizen-centric services electronically.
- ✚ The Department of Telecommunications set up a high-level forum to develop the roadmap for 5G services in India by 2020.

