Prelim Bits 30-12-2021 | UPSC Daily Current Affairs

Quantum Technologies

Indian Army has established the Quantum Lab at Military College of Telecommunication Engineering, Mhow (MP).

- Key thrust areas are Quantum Computing, Quantum Communication, Quantum Key Distribution and Post Quantum Cryptography.
- **Related Links** - Quantum Random Number Generator

Quantum Theory explains the behaviour of energy and material on the atomic and subatomic levels.

It works using the quantum bits or qubits.

Quantum Computing

- Quantum computing is an area of computing focused on developing computer technology based on the principles of quantum theory.
- It helps to solve problems too complex for classical computers.
- Normal Computers can only encode information in bits that take the value of 1 or 0 - restricting their ability.
- Quantum computing uses quantum bits or qubits. They harnesses the ability of subatomic particles that allows them to exist in more than one state (1 and 0 at the same time i.e, a state of superposition).
- The power of quantum computers grows exponentially with more qubits.
- This is unlike classical computers, where adding more transistors only adds power linearly.

Quantum Communication

- Quantum communication is a field of applied quantum physics closely related to quantum information processing and quantum teleportation.
- It takes advantage of the laws of quantum physics to protect data.
- These laws allow particles (qubits) - typically photons of light for transmitting data along optical cables - to take on a **state of superposition**.
- This means they can represent multiple combinations of 1 and 0 simultaneously.

Quantum Key Distribution

- Quantum key distribution (QKD) is a secure communication method which implements a

cryptographic protocol involving components of quantum mechanics.
- QKD enables two parties to produce a shared random secret key (encryption key) known only to them.
- These encryption keys can be exchanged only between the shared parties. (This makes the communication private.)
- These keys can then be used to encrypt & decrypt messages.
- QKD involves sending encrypted data as classical bits over networks, while the keys to decrypt the information are encoded and transmitted in a quantum state using qubits.

Post Quantum Cryptography

- The private communication of individuals and organizations is protected online by cryptography. Cryptography protects our information as it travels over and is stored on the internet.
- Post-quantum cryptography (quantum-proof, quantum-safe or quantum-resistant) refers to the existing cryptographic algorithms (especially public-key algorithms).
- These algorithms were thought to be secure against a cryptographic attack by a quantum computer.
- But, the problem with currently popular algorithms is that their security relies on one of three hard mathematical problems:
    1. Integer factorization problem,
    2. Discrete logarithm problem or
    3. Elliptic-curve discrete logarithm problem.
- All of these problems can be easily solved on a sufficiently powerful quantum computer running Shor's algorithm.
- Post-quantum cryptography is all about preparing for the era of quantum computing by updating existing mathematical-based algorithms and standards.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1786012
2. https://qt.eu/discover-quantum/underlying-principles/quantum-key-distribution-qkd/
3. https://www.techtarget.com/searchsecurity/definition/quantum-key-distribution-QKD
4. https://www.technologyreview.com/2019/02/14/103409/what-is-quantum-communications/
5. https://www.ibm.com/in-en/topics/quantum-computing
6. https://www.investopedia.com/terms/q/quantum-computing.asp
7. https://www.microsoft.com/en-us/research/project/post-quantum-cryptography/
8. https://quantumxc.com/blog/quantum-encryption-vs-post-quantum-cryptography-infographic/

‘India Out’ Campaign

Recently, in Maldives, the ‘India Out’ campaign has gained momentum with their former President Abdulla Yameen leading it.

- **Story Behind** - Over the last 3 years since Maldives President Ibrahim Mohamed Solih was elected to office, an ‘India Out’ campaign has cropped up every now and then within Maldives, mostly on social media.
- The campaign is led by government critics who accuse their government of “allowing Indian boots on the ground”, and thereby “compromising the sovereignty” of the Indian Ocean island nation.
- But the ruling administration has denied there is any Indian military presence in the country, or a threat to Maldives’ sovereignty.

- **Recent development** - Recently, the campaign has gained momentum with former President Abdulla Yameen leading it.
- [During Mr. Yameen's term as President, New Delhi-Male relations deteriorated drastically. He is perceived as a friend of China.]
- The campaign has got louder around key bilateral developments such as the signing of the Uthuru Thila Falhu harbour development deal with India.
- New Delhi is helping Male develop the Maldives National Defence Force Coast Guard Harbour.
- **Factors** that have led to such anti-India sentiments in Maldives are controversy over India's gift of Dhruv Advanced Light Helicopters, Domestic Politics, Perception of interference in Domestic Affairs, etc

Reference

1. https://www.thehindu.com/news/international/the-india-out-campaign-in-the-maldives/article38046584.ece
2. https://indianexpress.com/article/explained/the-maldives-india-out-campaign-explained-7396314/

Apatani Textiles

An application seeking Geographical Indication (GI) tag for the Arunachal Pradesh Apatani textile product has been filed by a firm.

- The Apatani weave comes from the Apatani tribe of Arunachal Pradesh living at Ziro, the headquarters of lower Subansiri district.
- The woven fabric of this tribe is known for its **geometric and zigzag** patterns and also for its angular designs.
- The tribe predominantly weaves shawls known as jig-jiro and jilan or jackets called supuntarii.
- They use different plant resources for organic dying the cotton yarns in their traditional ways.
- **Only women** folk are engaged in weaving.
- Their traditional handloom is a type of loin loom called **Chichin**, and is similar to the traditional handloom of the Nyishi tribe.
- **Related Links** - GI tag

Apatani Tribes

- 'Apatani Tribes' of Arunachal Pradesh are one of India's larger tribes.
- Apatani, or Tanw, also known by Apa and Apa Tani, are known for their fish and paddy culture, along with cane and bamboo crafts.
- Their vibrant traditional village councils are called **bulyañ**.
- They speak a local language **Tani** and worship the sun and the moon.
- **Festivals** are Marun, Myako, Dree, and Yapung.
- The elders in the tribe propagate knowledge through folk stories, songs, couplets in the form of Miji-Migun, Busi-Ayu.
- They were the first tribe in India to come in contact with the British in the 12th century.

The UNESCO has proposed the Apatani valley for inclusion as a World Heritage Site for its "extremely high productivity" and "unique" way of preserving the ecology.



Reference

1. https://www.thehindu.com/news/national/other-states/plea-seeks-gi-tag-for-arunachal-apatani-textile-product/article38059215.ece
2. https://indianculture.gov.in/intangible-cultural-heritage/social-practices-rituals-and-festive-events/apatani-tribes-arunachal
3. https://lowersubansiri.nic.in/tribes/

Non-renewal of Registration of NGOs under FCRA

The Ministry of Home Affairs (MHA) declined to renew the registration of 'Missionaries of Charity' under the Foreign Contribution (Regulation) Act.

- **FCRA** - First enacted in 1976, Foreign Contribution (Regulation) Act, 2010 was amended in 2010 and 2020.
- The FCRA regulates foreign donations and ensures that such contributions do not adversely affect internal security.
- It is applicable to all associations, groups and NGOs which intend to receive foreign donations.
- Registered associations can receive foreign contribution for social, educational, religious, economic and cultural purposes.
- Filing of annual returns, on the lines of Income Tax, is compulsory.

Rules for NGOs

- All NGOs must mandatorily register under the FCRA, initially valid for 5 years that can be renewed subsequently if it complies with all norms.
- According to Section 16 of the Act, the certificate of registration should be renewed within six months of its expiry.
- **In 2015**, the MHA notified new rules, which required NGOs to give an undertaking that the acceptance of foreign funds is **not likely to**

1. Prejudicially affect the sovereignty and integrity of India, or
2. Impact friendly relations with any foreign state and
3. Disrupt communal harmony.

- It also said all such NGOs would have to operate accounts in either nationalised or private banks which have core banking facilities to allow security agencies access on a real time basis.

- **In 2020**, FCRA was amended to insert a new provision that makes it mandatory for all NGOs to receive foreign funds in a designated bank account at SBI's New Delhi branch.
- Any other bank account can be linked to the main account but all foreign donations should be received in the SBI account.
- The Act also made Aadhaar a mandatory identification document for all the office-bearers, directors and other key functionaries of an NGO.
- It also capped the administrative expenses at 20% of the total foreign funds received - earlier, the upper limit was 50%.
- It also barred sub-granting by NGOs to smaller NGOs who work at the grass roots level.

Not eligible to Receive Foreign Donations

- Members of legislatures, political parties, government officials, judges, media persons are prohibited from receiving any foreign contribution.
- However, in 2017, the MHA through the Finance Bill route amended the 1976-repealed FCRA law.
- This 2017 amendment paved the way for political parties to receive funds from the Indian subsidiary of a foreign company or a foreign company where an Indian holds 50% or more shares.

Other Way to Receive Foreign Donations

- Other way is by applying for prior permission from the MHA. It is granted for receipt of a specific amount from a specific donor for carrying out specific activities or projects.
- But the association should be registered under statutes such as the Societies Registration Act, 1860, Indian Trusts Act, 1882 or Section 25 of the Companies Act, 1956 etc.
- A letter of commitment from the foreign donor specifying the amount and purpose is also required.

Inspection

The MHA is the controlling authority of FCRA and it conducts inspections and audits of NGOs to establish if their books are in order.

- The MHA on inspection of accounts and upon receiving any adverse input against the functioning of an association can suspend the FCRA registration initially for a period of 180 days.
- Till the time any decision is taken, the association cannot receive any fresh donation and cannot utilise more than 25% of the amount available in the designated bank account without permission of the MHA.
- The MHA can cancel the registration of an organisation which will not be eligible for registration or grant of 'prior permission' for 3 years from the date of cancellation.
- The MHA can also place foreign donors on the "watch list" or 'Prior Reference Category' (PRC), barring them from sending money to associations without the MHA's clearance.

Reference

https://www.thehindu.com/news/national/explained-how-will-the-foreign-funding-for-charity-issue-be-resolved/article38064211.ece



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