1. What is India's cyber security risk perception in the financial sector? What are the most common cyber security threats in this area? Examine.

Approach

Introduction should define cyber security. Body of the answer should describe about risk perception of India's banking sector from cyber-attack. Candidates should also mention about possible type of most common cyber security threats in financial sector.

Introduction

Cyber Security is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage. Cybersecurity breaches continue to grow in India in terms of frequency and sophistication for all industries, and the financial sector is especially the most vulnerable.

Body

Cyber space Risk perception in financial sector:
- Financial services firms succumb to cybersecurity attacks time and again, more often than organizations in other industries. A breach in security leads to loss of data and earnings for a banking institution, disruptions in operations, loss of reputation along with loss of customers.
- The Reserve Bank of India (RBI) has also corroborated that in the post Covid-19 lockdown period, there has been an increased incidence of cyber threats against the banking industry. The central bank underscored that the banking industry is the target of choice for cyber-attacks.
- A recent cyberattack in India in 2018 took place in Cosmos bank when hackers siphoned off Rs. 94.42 crores. Hackers hacked into the bank's ATM server and took all the card details and wiped off money from 28 countries and immediately withdrew the amount as soon as they were informed.
- Since banking sectors are depending on online banking, both mobile and web services tend to have a weak security system, due to which cyber security threats are becoming more prominent. Mostly, cybercriminals prefer to target the banking sector to get customer and employee information details and use them to steal bank data and money.

Common cyber security threat:

Identity theft:
- Identity theft is the utilization of a person's personal and/or financial data without their approval with the motive of conducting a concealed fraud. A privacy breach in a bank can also lead to the information of the bank's customers being sold or purchased on the dark web by other cybercriminals.

Third-Party Services that Aren't Secure:

- Several banks and financial establishments make use of third-party services from other merchants to provide better service to their customers. Nonetheless, if those outsider merchants don't have great cyber security set up, your bank could be the one that endures.

Spoofing:

- Spoofing is relatively a newer type of cyber security threat wherein the hackers find a way to imitate a financial institutions' website's URL with a website that looks and functions the same. When customers enter their login data in an impersonated website, that data is then taken by the cybercriminals to be utilized later.

Ransomware:

- Ransomware is a kind of malware that scrambles information, making it inconceivable for the proprietors of that information to get to it except if they pay a heavy expense. The ransomware locked users' devices and prevented them from accessing data and software until a certain ransom was paid to the criminals. Top five cities in India (Kolkata, Delhi, Bhubaneswar, Pune and Mumbai) got impacted due to it.

Threat from employees:

- Unhappy or dissatisfied employees contribute to the large scale of the risk, by breaching the companies policies and causing security threats to the organizations.

Account-centric frauds:

- This is one of the common types of fraud, these frauds mainly concentrate on stealing and hacking sensitive details such as Account Number, Password, OTP, etc.

To reduce Cyber Security Threats in the Financial Sector:

- Assess Cloud Security: Review your cloud infrastructure often to ensure it's up to date. Assess your cloud security's current state, best practices, and compliance standards. To secure cloud platforms and infrastructure one can use multifactor authentication.
- Disaster Recovery Plan: Having an alternate plan to protect the data, help you to minimize downtime after a disruption and avoid data loss. This can be applied only if you backup your data regularly.
- Encrypt Your Data: Cryptography is one of the methods to encrypt your data and ensures your most sensitive digital assets are always protected.

Conclusion

While RBI and the Government are taking proactive steps to battle cyber-attacks, they are also evolving with newer technology trends like cryptocurrencies and blockchain. This gradually increases the need for cybersecurity as a part of the design architecture intending to detect the stemming attacks in real-time, rather than repairing the damage.

2. Do you think a complete ban on single use plastic can address the problem of pollution in a sustainable manner? Isn't sustainable management of plastic use through the 'reduce, reuse and recycle' approach a better way to handle pollution? Critically examine.

Approach

Start with simply defining the SUP. And highlight the pros and cons of ban of single use plastic. Then as asked in question critically examine the approach of RRR method whether its sustainable with highlighting few limitations candidates can suggest way forward and end with brief conclusion.

Introduction

Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled. These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging. The recent ban by Maharashtra on the single use of plastic has elicited some rather extreme reactions.

Body

The first problem with an outright ban is enforcement. The authorities might not have the necessary resources or will to monitor the production of plastics. Furthermore, as with others, such as prohibition of alcohol, there are distributional effects as it generally impacts the poor producers and consumers.

Cons of ban:
- Escalate cost and may lead to job losses.
- Uncertainty had led to closure of 10000 units.
- Plastic is used by poor or common man and thus it will impact them the most.
- It could produce other form of pollution, plastic bags production require few resources as compared to paper bags.

Pros of ban:
- Rejuvenating innovations in bioplastics.
- Golden opportunity for India to lead the world in this environment friendly initiative.
- More than 8 million metric tonnes of plastic gets dumped in ocean every year, this step will reduce that.
- Even a poor continent like Africa has plastic bag regulation in place.

The sustainable management of plastic use through the 'reduce, reuse and recycle' approach had several difficulties and limitations:
- Online or E-Commerce Companies: Apart from the plastic we consume through traditional retail, the popularity of online retail and food delivery apps, though restricted to big cities, is contributing to the rise in plastic waste which are out of RRR approach.

- Improper Implementation and Monitoring: In spite of the notification of the Plastic Waste Management (PWM) Rules, 2016 and amendments made in 2018, local bodies (even the biggest municipal corporations) have failed to implement RRR and monitor segregation of waste.
- Impact of covid: The problem has only worsened during the COVID-19 pandemic. In addition to the necessary increase of single-use plastics for personal protective equipment (PPE) like face masks and shields, some governments and businesses have delayed the approach of RRR.
- The process of breaking down plastics is not only expensive but intricate and complicated. A city municipality paying for recycling services is more expensive than we think. The city has to pay for plants, trucks, workers, and maintenance of recycling plants, and the cost adds up quickly. For manufacturers, using recycled plastic is triple the cost of new plastic.
- Unlike urban local bodies, gram panchayats may not have the resources to do routine checks on plastic use. Maharashtra is among the 23 states that have fully or partially banned plastic bags, but that has not stopped people from using them.
- Establishing new recycling protocols often involves a high initial cost.
  Recycling isn't a process that just happens. There are units that need to be set up, factory upgrades that need to be made, and attaining trucks to haul the recycled material.
- As is often the case with recycling sites, waste produced is frequently mixed with large bodies of water, leading to broader scale pollution. Quite the opposite effect of what recycling advocates are going for.

Assessing the potential social, economic and environmental impacts positive and negative of plastic waste management measures, by considering how will the poor be affected there should be preferred course of action such as:

- An organic cotton bag must be reused 20,000 times to produce less of an environmental impact than a single-use plastic bag. That would be like using a cotton bag every day for nearly 55 years.
- Extended Producer Responsibility (EPR) programs can ensure that manufacturers maintain responsibility for single-use plastic products throughout the whole life cycles of those products.
- For example Project REPLAN (stands for REducing PLastic in Nature) launched by Khadi and Village Industries Commission (KVIC) aims to reduce consumption of plastic bags by providing a more sustainable alternative.
- Provide incentives to the alternative industry by introducing tax rebates or other conditions to support its transition from plastic industry.

Conclusion

India has a major problem dealing with plastics, particularly single-use shopping bags that reach dumping sites, rivers and wetlands along with other waste. Addressing plastic waste in the environment and developing a resource efficiency and circular economy of plastics will require the participation of everyone across the entire value chain and the long term commitment of businesses, governments, and communities.

3. What is sea snot? How can it affect marine ecology? Why was it in news recently? Discuss.

Approach

Define give simple information on the sea snot, try to explain why its in news recently refer turkey outbreak, and write how it can impact marine ecology with suggestions to counter it in the end.

Introduction

Sea Snot, which looks like a viscous, brown and foamy substance, are huge mass of marine mucilage – a thick, slimy substance made up of compounds released by marine organisms. It is formed when algae are overloaded with nutrients as a result of water pollution combined with the effects of climate change.

Body

- Recently, Turkey's Sea of Marmara, which connects the Black Sea to the Aegean Sea, has witnessed the largest outbreak of 'sea snot'. Several species are under threat due to sea snot, livelihoods of fishermen are getting affected due to mass deaths among the fish population.
- Turkey had recorded its first Sea snot outbreak in 2007. Back then, it was also spotted in the Aegean Sea near Greece. This time, the thick layer of slimy goop extends for miles in every direction in the Sea of Marmara of Istanbul.
- This outbreak of mucilage is believed to be one of the largest on record, till date, and has created havoc along the country's coastline for months. It has suffocated the marine life, cloaked the harbours and clogged fishermen's nets.

Sea snot impact on marine ecology:
- Marine Ecosystem gets affected – Since the snot covers up the surface of the water along with 80 to 90 feet below the surface, it results in the death of many sea creatures, fishes and other aquatic organisms such as corals and sponges.
- Clogs Fishermen's nets – The livelihood of fishermen gets affected as the sludge gets collected on the nets, making them heavy and tougher to remove from the water, ultimately resulting in the breaking down of nets. Also, because of the dark colour of the layer formed on the surface, the net becomes visible to the fishes, and it becomes difficult to trap them.
- Gives rise to water-borne diseases – Cases of diseases like cholera which are water-borne may also rise.
- Poisoning Aquatic Organisms – When the algae and seagrass die, they decay and in this process the oxygen in the water is used up and this leads to low levels of dissolved oxygen in the water. This, in turn, can kill fish, crabs, oysters, and other aquatic animals.

Measures to tackle outbreak:

- Short-term countermeasures include collecting it from the sea surface and laying barriers on the sea surface.
- Long-term countermeasures include improving wastewater treatment, creating marine protected areas, and limiting climate change.
- Another effort could be developing such water bodies as tourist hubs so that waters do not remain stagnant for long which contributes for accumulation of sea snot.
- Another one could be introducing such marine species in the sea which could consume excessive nutrients, for cleaning purpose only and later keeping them in artificially developed habitats.

Conclusion

With the increased water pollution, global warming and deteriorating climatic condition, the overall situation of water bodies across the globe are being affected. Considering sea snot, it also leaves a severe impact on marine life. All necessary actions must be taken by the authorities to preserve the water bodies with sharing information and controlling water pollution.