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GS 2 : Polity, Governance, International Relations

1. Antimicrobial resistance: the silent threat

Context:

- The health crisis brought out by the COVID-19 pandemic has starkly exposed the **vulnerabilities of health systems to infectious diseases**, both in the developing as well as in the richest countries.

Antimicrobial resistance:

- Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making **infections harder to treat and increasing the risk of disease spread, severe illness and death**. **Read more on antimicrobial resistance in the linked article.**

Factors aiding AMR:

- Though the mutations are common in micro-organisms, **human activities seem to be augmenting the process of mutation** in these micro-organisms, which seem to be driving the evolution of resistance in microbes.
- Drug resistance in microbes emerges for several reasons, some of which are as follows:
 - **Misuse of antimicrobials in medicine**
 - **Inappropriate use in agriculture**
 - **Contamination around pharmaceutical manufacturing sites** where untreated waste releases large amounts of active antimicrobials into the environment.

Concerns:

- AMR represents an existential threat to modern medicine. Without functional antimicrobials to treat bacterial and fungal infections, even the most common surgical procedures, as well as cancer chemotherapy, will become fraught with risk from untreatable infections.
- **AMR is already responsible for up to 7,00,000 deaths a year**. Unless urgent measures are taken to address this threat, the global community could

witness an unprecedented health and economic crisis of **10 million annual deaths and costs of up to \$100 trillion by 2050.**

- Though the AMR would be a global challenge, the **low- and middle-income countries (LMICs) of Asia and Africa are more likely to be more impacted.** The LMICs have significantly driven down mortality using cheap and easily available antimicrobials. AMR which would render these antimicrobials ineffective would overrun the already **deficient and overburdened health systems** in these countries.
- Notably, **no new classes of antibiotics have made it to the market in the last three decades.** This is mainly due to the inadequate incentives for the development and production of antibiotics.
 - A recent report from the non-profit PEW Trusts found that over 95% of antibiotics in development today are from small companies, 75% of which have no products currently in the market. Major pharmaceutical companies have largely abandoned innovation in the antibiotics segment.
- The World Health Organization Director-General has termed **AMR a slow tsunami** that threatens to undo a century of medical progress.

Recommendations:

- Tackling the diverse challenges posed by AMR requires action in a range of areas.

Developing new antimicrobials:

- The medicine sector should focus on developing new generation antimicrobials.
- The **government should design and devise appropriate policies to incentivize pharmaceutical companies** to engage in the research and development of antibiotics.
 - A multi-sectoral **\$1 billion AMR Action Fund** was launched in 2020 to support the development of new antibiotics.
 - The U.K. is trialling a subscription-based model for paying for new antimicrobials towards ensuring their commercial viability. This will involve the governments paying upfront for these new antimicrobials, thereby delinking the life-saving value of the drugs from the volume of sales and providing an incentive for their production.

Infection control measures:

- The infection-control measures can help reduce antibiotic use on one hand and also aid in limiting the spread of AMR diseases.

Surveillance:

- To track the spread of resistance in microbes, surveillance measures to identify these organisms need to expand beyond hospitals and encompass livestock, wastewater and farm run-offs.
- There is a need for **sustained investments and global coordination to detect and combat new resistant strains** on an ongoing basis.

Ensuring appropriate clinical use of antibiotics:

- Regulating clinician prescription of antimicrobials alone would do little in settings where patient demand is high and antimicrobials are freely available over-the-counter in practice, as is the case in many LMICs. Efforts to control prescription through provider incentives should be accompanied by efforts to educate consumers to reduce inappropriate demand, issue standard treatment guidelines that would empower providers to stand up to such demands, as well as provide point-of-care diagnostics to aid clinical decision-making.
- **A mix of incentives and sanctions should encourage appropriate clinical use.**
 - Peru's efforts on patient education to reduce unnecessary antibiotic prescriptions will help ensure the appropriate use of antibiotics.
 - Australia has undertaken extensive regulatory reforms to help influence prescriber behaviour when it comes to antibiotics.
 - **The EU supported VALUE-Dx programme** aims to increase the use of point-of-care diagnostics. This would aid clinical decision-making and help avoid unnecessary antibiotic usage.

Looking beyond the health sector:

- **The integrated approach to dealing with AMR will require the administration to look beyond the health system.** Solutions in clinical medicine must be integrated with improved surveillance of AMR in **agriculture, animal health and the environment.**
- AMR needs engagement from a wide range of stakeholders apart from the health sector, representing agriculture, trade and the environment with solutions that balance their often-competing interests.
 - **Denmark's reforms to prevent the use of antibiotics in livestock** have not only led to a significant reduction in the prevalence of resistant microbes in animals but also improved the efficiency of farming.
 - **India's recently proposed law to curb the amount of active antibiotics released in pharmaceutical waste** is a welcome initiative in helping

address the critical role of manufacturing and environmental contamination in spreading AMR through pharmaceutical waste.

Global collaborative effort:

- The high potential for the spread of infectious diseases across international borders necessitates the need for **cross-national cooperation around surveillance, monitoring and disease notification**. These key activities will help minimise the impact of acute public health events such as COVID-19 and will help maintain global health security.
- Given the fact that successful policies in individual countries are no guarantee of global success, international alignment and coordination are paramount in both policymaking and its implementation.
 - The Paris Agreement should act as a blueprint for developing a similar global approach to tackling AMR.

Conclusion:

- **Antimicrobial resistance (AMR) is one of the greatest challenges of the 21st century.**
- Given the threat posed by AMR, which the author of the article refers to as a “silent pandemic”, there is the need for urgent action to tackle the challenge.

2. Centre notifies Act giving more powers to Delhi L-G

Context:

The Ministry of Home Affairs issued a gazette notification stating that the **provisions of the Government of National Capital Territory of Delhi (Amendment) Act, 2021**, would be deemed to have **come into effect from April 27, 2021**.

Details:

- The Act gives the **Lieutenant-Governor of Delhi more powers and significantly waters down the powers of both the elected government and the Legislative Assembly**.
- The Act will clarify the expression “Government” and address ambiguities in the legislative provisions to promote harmonious relations between the legislature and the executive.
- The Act defines the responsibilities of the elected government and the L-G along with the constitutional scheme of governance of the NCT interpreted

by the Supreme Court in recent judgments regarding the division of powers between the two entities.

- It will also seek to ensure that the **L-G is necessarily granted an opportunity to exercise powers** entrusted to him under **clause (4) of Article 239AA of the Constitution.**

3. India, Australia, Japan push for supply chain resilience

Context:

The **Supply Chain Resilience Initiative (SCRI)** was formally launched by the Trade Ministers of **India, Japan and Australia.**

Details:

- The three sides agreed that the pandemic revealed supply chain vulnerabilities globally and in the region.
- The countries noted the importance of risk management and continuity plans in order to avoid supply chain disruptions.
- The SCRI aims to **create a virtuous cycle of enhancing supply chain resilience with a view to eventually attain strong, sustainable, balanced and inclusive growth in the region.**
- It seeks **to build upon the existing bilateral frameworks** like the Asean-Japan Economic Resilience Action Plan and India-Japan Industrial Competitiveness Partnership and **attract foreign direct investment in the region.**
- Some of the joint measures being considered are:
 - **Supporting the enhanced utilisation of digital technology.**
 - **Trade and investment diversification.**
- Initially, SCRI will focus on sharing best practices on supply chain resilience and holding investment promotion events and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.

Note:

- The initiative is seen as a **move to counter China's dominance of the supply chain in the Indo-Pacific region.**
- China has described the effort as unrealistic.

4. Making social welfare universal

Background:

- Despite being one of the largest welfare states in the world, India seems to have failed to provide for its most vulnerable citizens during the COVID-19 pandemic.
- India witnessed multiple crises: **mass inter- and intra-migration, food insecurity, and crumbling health infrastructure**. As per some estimates, **the pandemic has pushed an estimated 75 million people into poverty**. The second wave of the pandemic has also affected middle and upper-class citizens.
 - Economic capital, in the absence of social capital, has proven to be insufficient in accessing healthcare facilities.
- India has over 500 direct benefit transfer schemes for which various Central, State, and Line departments are responsible. However, these schemes have not reached those in need.

Details:

- The author argues for a **universal social security system in India**.

International best practice:

- A good example of a social protection scheme is the **Poor Law System in Ireland**.
- The Poor Law System of Ireland not only provides timely assistance but also helps maintain the dignity and respectability of the poor while doing so.
- These have acted as necessary responses to a time of economic crisis rather than being mere handouts to the poor. Today, the social welfare system in Ireland has evolved into a four-fold apparatus that **promises social insurance, social assistance, universal schemes, and extra benefits/supplements**.

Arguments in favour:

Advancement in technology:

- With the advancements in knowledge and technology, universal coverage of social welfare is possible in a shorter time frame.

Ease of application:

- Existing schemes cover a wide variety of social protections. However, they are fractionalised across various departments and sub-schemes. This causes problems beginning with data collection to last-mile delivery. Having a universal system **would improve the ease of application by consolidating the data of all eligible beneficiaries under one database.**

Reduce exclusion errors:

- The universal schemes will also help reduce exclusion errors.
- Generally, social assistance schemes are provided on the basis of an assessment of needs. Having a **universal scheme would take away this access/exclusion barrier.** For example, PDS can be linked to a universal identification card such as the Aadhaar or voter card, in the absence of a ration card. This would allow anyone who is in need of foodgrains to access these schemes. It would be especially useful for migrant populations.

Potential of such a scheme:

- Making other schemes/ welfare provisions like education, maternity benefits, disability benefits, etc. also universal would ensure a **better standard of living for the people.**

Recommendations:

- There is a need to **map the State and Central schemes** in a consolidated manner. This is to avoid duplication, inclusion and exclusion errors in welfare delivery.
- There is a need for **detailed studies to understand the costs of welfare access** for vulnerable groups. This will help clear the concerns over the financial viability of universal social security schemes.
- The implementation of effective universal social security schemes is only possible through a focus on **data digitisation, data-driven decision-making and collaboration across government departments.**
- The Pradhan Mantri Garib Kalyan Yojana (PMGKY) is one scheme that can be strengthened into universal social security.

Conclusion:

- The pandemic has revealed that leveraging our existing schemes and **providing universal social security is of utmost importance.** This will help absorb the impact of external shocks on our vulnerable populations.

5. 2 die of shock after quake hits Assam

Context:

An earthquake with a magnitude of 6.4 struck Assam.

Details:

- The earthquake was felt across **northeast India, Bihar, West Bengal, Bhutan and Bangladesh.**
- The National Centre of Seismology said the **epicentre of the quake**, at a depth of 10 km, was **Dhekiajuli in Sonitpur district**, and initial analysis showed it was located near the **Kopili Fault closer to the Himalayan Frontal Thrust.**
- The **area is seismically very active falling in the highest Seismic Hazard Zone V** associated with **collisional tectonics** where the **Indian Plate subducts beneath the Eurasian Plate.**
- The last major quake in the region was of magnitude 6.0 on July 29, 1960.

Earthquake

An earthquake is the **shaking of the surface of the Earth** resulting from a **sudden release of energy** in the Earth's lithosphere that creates seismic waves.

Seismic Zones in India:

- The **Bureau of Indian Standards**, based on the past seismic history has grouped the country into **four seismic zones namely Zone-II, Zone-III, Zone-IV and Zone-V.**
- **Zone-V is the most seismically active region** whereas Zone-II is the least active region.
- Entire northeastern India, parts of the UTs Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Rann of Kutch, parts of North Bihar and the Andaman and Nicobar Islands are classified as Zone-V.

GS 3 : Economy, Science and Technology, Environment

6. 'Limited sops make scrappage policy for vehicles unattractive'

Context:

According to a report by ratings agency Crisil Research, **limited sops would make the vehicle scrappage policy unattractive.**

Details:

- The report states that **limited incentives and poor cost economics for trucks in the Vehicle Scrappage Policy**, coupled with **lack of addressable volumes for other segments** are unlikely to drive freight transporters to replace their old vehicles with new ones.
 - Eg: The potential benefit from scrapping a 15-year-old, entry-level small car will be 70,000, whereas its resale value is around ₹95,000.
- However, it said that though the scrappage volume of buses, PVs and two-wheelers are expected to be limited as well, **the policy's impact on new commercial vehicle (CV) sales could be sizeable.**
- The policy **proposes to de-register vehicles that fail fitness tests or are unable to renew registrations after 15-20 years of use.**

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Agriculture Infrastructure Fund

Why in News

Agriculture Infrastructure Fund has crossed the eight thousand crore mark. The investment will give a boost to several agricultural projects which will unlock value for farmers across the country.

Key Points

- It is a **central sector scheme**
- **Aim:**
 - To provide **medium - long term debt financing facility** for investment in viable projects for **post-harvest management Infrastructure** and community farming assets.
 - The funds will be provided for setting up of cold stores and chains, warehousing, grading and packaging units, e-marketing points linked to e-trading platforms, besides PPP projects for crop aggregation sponsored by central/state/local bodies.
- **Duration:** Financial Year **2020 to 2029**.
- **Features:**
 - **Eligible Beneficiaries:**
 - They are **Farmers, FPOs, PACS, Marketing Cooperative Societies, SHGs, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Start-ups, and Central/State agency or Local Body sponsored Public-Private Partnership (PPP) Projects.**
 - **Financial Support:** **Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans** to eligible beneficiaries.
 - Moratorium for repayment may vary subject to minimum of 6 months and maximum of 2 years.
 - **Interest Subvention:** Loans will have interest subvention of 3% per annum up to a limit of Rs. 2 crore. This subvention will be available for a maximum period of seven years.

- **CGTMSE Scheme:** A credit guarantee coverage will be available for eligible borrowers from the scheme under **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme** for a loan up to Rs. 2 crore.

Central Sector Scheme

- These schemes are 100% funded by the Central government.
- Implemented by the Central Government machinery.
- Formulated on subjects mainly from the Union List.
- E.g.: Bharatnet, Namami Gange-National Ganga Plan, etc.

2. Launch of Supply Chain Resilience Initiative

Why in News

The Trade Ministers of **India, Japan and Australia** have formally launched the **Supply Chain Resilience Initiative (SCRI)**.

- The **SCRI aims to create a virtuous cycle of enhancing supply chain resilience** with a view to eventually attaining strong, sustainable, balanced and **inclusive growth in the Indo-Pacific region**.
- **The trio (India, Japan and Australia) along with the US makes Quad grouping.**

Key Points

- **Supply Chain Resilience (Concept):**
 - **Meaning:** In the context of international trade, supply chain resilience is an approach that **helps a country to ensure that it has diversified its supply risk across a clutch of supplying nations** instead of being dependent on just one or a few.
 - **Importance:** In **unanticipated events** -whether natural, such as volcanic eruptions, **tsunamis, earthquakes** or even a pandemic; or manmade, such as an armed conflict in a region — that **disrupt supplies from a particular country** or even intentional halts to trade, **could adversely impact economic activity in the destination country.**
- **Supply Chain Resilience Initiative:**
 - **Background:**
 - The **Covid-19 pandemic was having an unprecedented impact in terms of lives lost, livelihoods and economies affected**, and that the pandemic had **revealed supply chain vulnerabilities globally and in the region.**
 - **About:**

- **Objectives:**
 - To **attract foreign direct investment** to turn the Indo-Pacific into an “economic powerhouse”.
 - To build a mutually **complementary relationship among partner countries**.
 - To work out a plan to **build on the existential supply chain network**. Japan and India, for example, have an India-Japan competitiveness partnership dealing with locating the Japanese companies in India.
- **Features:**
 - The SCRI, first **proposed by Japan**, aims to **reduce dependence on China** amid a likelihood of rechurning of supply chains in the Indo-Pacific region amid the Covid-19 pandemic.
 - **Initially**, SCRI will **focus on sharing best practices on supply chain resilience and holding investment promotion events** and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.
 - Joint measures may include **supporting the enhanced utilisation of digital technology and trade and investment diversification**.
 - **Expansion of the SCRI may be considered based on consensus**, if needed, in due course. The **ministers have decided to convene at least once a year** to provide guidance to the implementation and development of the SCRI.
 - This **assumes significance in the wake of Japan's keenness to onboard the ASEAN in the initiative**, something that **India has opposed**.
 - **India wants to safeguard its interests from China's indirect influence through the bloc (ASEAN)** as it builds on its self-reliance through reduced dependence on imports.
- **Significance to India:**
 - Following the **border tensions with China**, partners such as Japan have sensed that India may be ready for dialogue on alternative supply chains.
 - **China still remains a large source of critical imports for India**, from mobile phone components to pharmaceutical ingredients. An internal push to suddenly cut links with China would be impractical.

- Over time, if India enhances self-reliance or works with exporting nations other than China, it could build resilience into the economy's supply networks.

Way Forward

- It will help boost India's manufacturing competitiveness and increase its share in world trade. In this pursuit, there is a **need to create an infrastructure** that raises the competitiveness of India's exports.
- While India appears an attractive option for potential investors both as a market and as a manufacturing base, it **needs to accelerate progress in ease of doing business and in skill building.**

GS 3 :Economy, Science and Technology,Environment

3. RBI Report on Asset Reconstruction Companies

Why in News

The Reserve Bank of India (RBI) in its report on Asset Reconstruction Companies (ARCs) said that the **growth of the ARC industry has not been consistent** over time and **not always been synchronous with the trends in Non-Performing Assets (NPAs)** of banks and **Non-Banking Financial Companies (NBFCs)**.

- However, the RBI has **supported the government's proposal for a new ARC**, saying that "such an entity will strengthen the asset resolution mechanism further."

Key Points

- **About the Asset Reconstruction Company (ARC):**
 - It is a **specialized financial institution that buys the Non Performing Assets (NPAs) from banks** and financial institutions so that they can clean up their balance sheets.
 - A **NPA** is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days.
 - This **helps banks to concentrate in normal banking activities.** Banks rather than going after the defaulters by wasting their time and effort, can sell the bad assets to the ARCs at a mutually agreed value.

- The **Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002** provides the **legal basis for the setting up of ARCs** in India.
 - The Act helps reconstruction of bad assets without the intervention of courts. Since then, a large number of ARCs were formed and were registered with the RBI.
- **RBI has got the power to regulate the ARCs.**
- **Growth of the ARC Industry:**
 - **Number of ARCs:** The ARC industry began with the **establishment of the Asset Reconstruction Company India Ltd (ARCIL) in 2003**. After remaining **subdued in the initial years** of their inception, a **jump** was seen in the number of ARCs **in 2008**, and then in **2016**.
 - **Concentration of Business among Few ARCs:** There has been a concentration in the industry **in terms of Assets Under Management (AUM) and the Security Receipts (SRs) issued**.
 - **Security Receipts (SR) are issued by the ARCs** when NPAs of commercial banks and/or financial institutions are acquired by the ARCs for the purpose of recovery.
 - **AUMs can be measured** with the help of SRs outstanding.
 - **Decline in 'Assets Under Management':** The **growth in ARCs' AUM has been largely trendless** except for a major spurt in FY14.
 - The AUM of ARCs has been on a declining trend **when compared with the volume of NPAs of banks and NBFCs**, except during the period of high growth in the AUM around 2013-14.
 - During **2019-20**, **asset sales by banks to ARCs declined**, which could probably be due to **banks opting for other resolution channels** such as **Insolvency and Bankruptcy Code (IBC)** and **SARFAESI**.
- **Issues with Indian ARCs:**
 - Indian ARCs have been **private sector entities** registered with the Reserve Bank. **Public sector AMC's in other countries** have often enjoyed easy access to government funding or government-backed.
 - The **capital constraints** have often been highlighted as an area of concern for ARCs in India.
 - Despite the regulatory push to broaden, and thereby enhance, the capital base of these companies, they **have remained reliant primarily on domestic sources of capital, particularly banks**.
 - Banks supply NPAs to the ARCs, hold shareholding in these entities and also lend to them, which makes it necessary to monitor if there is a **"circuitous movement of funds between banks and these institutions"**.
- **About the New ARC:**

- The **movement in asset quality of banks and NBFCs** following the Covid-19 pandemic **could bring ARCs into greater focus and action.**
- The **ARC proposed in the Budget will be set up by state-owned and private sector banks**, and there will be **no equity contribution from the Centre.**
 - The ARC, which will have an Asset Management Company (AMC) to manage and sell bad assets, **will look to resolve stressed assets of Rs. 2-2.5 lakh crore** that remain unresolved in around 70 large accounts.
- The introduction of a new ARC for addressing the NPAs of public sector banks **may also shape the operations of the existing ARCs.**
- There is a **definite scope** for the entry of a well-capitalised and well-designed entity in the Indian ARC industry. Such an entity will strengthen the asset resolution mechanism further.
- **Committee on ARCs:**
 - The RBI has announced the setting up of a committee, under the **chairmanship of Sudarshan Sen**, to undertake a comprehensive review of the working of ARCs in the financial sector ecosystem.

4. Clean energy innovation slowing, report warns

Major findings of the report

- It is a joint report titled **“Patents and the energy transition”** released by the European Patent Office and the **International Energy Agency.**
- The **average annual growth rate of patents** for low carbon emissions technologies has fallen to **3.3 percent since 2017**, the rate was **12.5 percent in the period 2000-2013.**
- The report found that around **35 percent of the cumulative CO2 emissions reductions needed to shift to a sustainable path** to reach net-zero emissions by 2070 are still currently at the prototype or demonstration phase.
- The report found that **energy efficiency and fuel-switching technologies** remained at the top of patent activities, accounting for about 60 percent of the total.

Shifting trend withing renewable

- Patent activity in renewable energy technologies such as **wind and solar has been in decline** for nearly a decade however, and represented just 17 percent of the total in 2019, report found.

- The key driver of patent growth since 2017 has been innovation in **cross-cutting technologies** such as batteries, hydrogen and smart grids, along with carbon-capture, utilisation and storage.

5. Assam Earthquake

Why in News

Recently, a powerful earthquake **measuring 6.4 on the Richter Scale** jolted Assam and other parts of Northeast.

- According to the **National Centre for Seismology (NCS)** report, the tremors have been attributed to **Kopili Fault zone closer to Himalayan Frontal Thrust (HFT)**.
 - NCS is the **nodal agency of the Government of India for monitoring earthquake activity in the country**. It comes under the **Ministry of Earth Sciences**.

Key Points

- **Himalayan Frontal Thrust (HFT):**
 - HFT, also known as the **Main Frontal Thrust (MFT)**, is a geological fault along the boundary of the **Indian and Eurasian tectonic plates**.
- **Kopili Fault Zone:**
 - The Kopili fault zone is a 300 km long and 50 km wide lineament (linear feature) extending from the **western part of Manipur up to the tri-junction of Bhutan, Arunachal Pradesh and Assam**.
 - The area is seismically very active falling in the highest **Seismic Hazard zone V** associated with collisional tectonics where **Indian plate subducts beneath the Eurasian Plate**.
 - Subduction is a geological process in which one crustal plate is forced below the edge of another.
 - Squeezed between the subduction and collision zones of the Himalayan belt and Sumatran belt, the North East is highly prone to earthquake occurrences.
- **Fault:**
 - A fault is a fracture along which the blocks of crust on either side have moved relative to one another parallel to the fracture.
 - When an earthquake occurs, the rock on one side of the fault slips with respect to the other.
 - The fault surface can be **vertical, horizontal, or at some angle to the surface of the earth**.

- **Tectonic Plates:**
 - A **tectonic plate** (also called lithospheric plate) is a massive, irregularly-shaped slab of solid rock, generally composed of both continental and oceanic lithosphere.
 - A tectonic plate may be a continental plate or an oceanic plate, depending on which of the two occupies the larger portion of the plate.
 - The Pacific plate is largely an oceanic plate whereas the Eurasian plate is a continental plate.

Earthquake

- An earthquake in simple words is the shaking of the earth. It is a natural event. It is caused due to release of energy, which generates waves that travel in all directions.
- The vibrations called **seismic waves** are generated from earthquakes that travel through the Earth and are recorded on instruments called seismographs.
- The location below the earth's surface where the earthquake starts is called the **hypocenter**, and the location directly above it on the surface of the earth is called the **epicenter**.
- **Types of Earthquake:** Fault Zones, Tectonic Earthquakes, Volcanic Earthquake, Human Induced Earthquakes.

Seismic Hazard Map of India

- India is one of the highly earthquake affected countries because of the presence of technically active young fold mountains - Himalaya.
- India has been divided into **four seismic zones (II, III, IV, and V)** based on scientific inputs relating to seismicity, earthquakes occurred in the past and tectonic setup of the region.
 - Previously, earthquake zones were divided into five zones with respect to the severity of the earthquakes but the **Bureau of Indian Standards (BIS)** grouped the country into four seismic zones by unifying the first two zones.
 - BIS is the official agency for publishing the seismic hazard maps and codes.
- **Seismic Zone II:**
 - Area with minor damage earthquakes corresponding to intensities V to VI of MM scale (MM-Modified Mercalli Intensity scale).
- **Seismic Zone III:**
 - Moderate damage corresponding to intensity VII of MM scale.
- **Seismic Zone IV:**

- Major damage corresponding to intensity VII and higher of MM scale.
- **Seismic Zone V:**
 - Area determined by pro seismically of certain major fault systems and is seismically the most active region.
 - Earthquake zone V is the most vulnerable to earthquakes, where historically some of the country's most powerful shocks have occurred.
 - Earthquakes with magnitudes in excess of 7.0 have occurred in these areas, and have had intensities higher than IX.

Prelims Practice Questions

1. Which of the following statements is/are correct?

1. The Carrier Strike Group of the United Kingdom is a regional deployment in the Indo Pacific region.
2. Indradhanush, Konkan and Ajeya Warrior are defence exercises between India and the UK.

Select the correct answer using the code given below:

- A 1 only
- B 2 only
- C Both 1 and 2
- D Neither 1 nor 2

Answer : B

Explanation

- The bilateral relationship between India and the United Kingdom was upgraded to a strategic partnership in 2004.
 - The UK has reaffirmed its support for India's permanent membership of the UN Security Council.
 - The UK is one of the largest investors in India, among the G20 countries.
- Defence Exercises of India and the UK:
 - **Air Force Exercise 'Indradhanush'.**

- Navy Exercise Konkan.
- Army Exercise: Ajeya Warrior. Hence, statement 2 is correct.
- Recently, the British Government said that the UK Carrier Strike Group's "globe-spanning maiden deployment will feature visits to India, Japan, Republic of Korea and Singapore".
 - It will be led by the aircraft carrier HMS Queen Elizabeth.
 - It will be a **global deployment, from the North Atlantic to the Indo-Pacific. Hence, statement 1 is not correct.**

2. Jaivik Kheti Portal is a unique initiative by the Government of India:

- a. to assist corporates and farmers for contract farming
- b. to create awareness about the latest technological developments in the agriculture and allied sectors
- c. to promote organic farming
- d. to integrate regulated markets in the country through a common e-platform

Answer: c

Explanation:

- Jaivik kheti portal is a unique initiative of the Ministry of Agriculture (MoA), Department of Agriculture (DAC) to promote organic farming globally.

3. Consider the following statements regarding Liquid Medical Oxygen (LMO):

1. It provides a basis for virtually all modern anaesthetic techniques.
2. It is under India's National as well as WHO's List of Essential Medicines.

Which of the statements given above is/are correct?

- A 1 only
- B 2 only
- C Both 1 and 2
- D Neither 1 nor 2

Answer : C

Explanation

- **Liquid Medical Oxygen (LMO)** is high purity oxygen suitable for use in the human body. So, it is used for medical treatments.
 - This oxygen **provides a basis for virtually all modern anaesthetic techniques**, restores tissue oxygen tension by increasing the oxygen availability, aids cardiovascular stability, etc. **Hence, statement 1 is correct.**
- The **World Health Organisation (WHO)** includes this on their **List of Essential Medicines**.
 - According to the Drug Prices Control Order, 2013, LMO is placed under the **National List of Essential Medicines (NLEM)**. **Hence, statement 2 is correct.**

4. Consider the following statements:

1. Tata Iron and Steel Company Limited (TISCO) was the very first iron and steel company in India.
2. Steel is a regulated sector, the Government sets annual targets for steel production.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. None

Answer: a

Explanation:

- Tata Iron and Steel Company Limited (TISCO) was the very first iron and steel company in India.
- Steel sector is not regulated by the government.

5. Consider the following statements:

1. The Shekatkar committee has recommended the creation of three integrated theatre commands.
2. The integrated theatre commander will not be answerable to individual Services.

Which of the statements given above is/are correct?

- A 1 only
- B 2 only
- C Both 1 and 2
- D Neither 1 nor 2

Answer ; C

Explanation

- An **integrated theatre command** envisages a **unified command of the three Services**, under a single commander, for geographical theatres (areas) that are of strategic and security concern.
 - The commander of such a force will be able to bear all resources at his disposal – from the Army, the Indian Air Force, and the Navy – with seamless efficacy.
 - The integrated theatre **commander will not be answerable to individual Services. Hence, statement 2 is correct.**
 - Integration and jointness of the three forces will avoid duplication of resources. The resources available under each service will be available to other services too.
 - The services will get to know one another better, strengthening cohesion in the defence establishment.
 - The **Shekatkar committee has recommended the creation of three integrated theatre commands** – northern for the China border, western for the Pakistan border, and southern for the maritime role. **Hence, statement 1 is correct.**

6. Karen and Kachin are two of the bigger minority groups located in?

- a. Nepal
- b. Myanmar
- c. Sri Lanka
- d. Burkina Faso

Answer : b

- Ethnic Karen guerrillas has recently said they captured a Myanmar army base near the border with Thailand.

- There is a similar situation in northern Myanmar, where the Kachin minority claims to have captured several government outposts and been the target of air attacks.
- The Karen and the Kachin are two of the bigger minority groups that have been seeking greater autonomy for decades, during which there have been periods of armed conflict punctuated by ceasefires.

Mains Practice Questions

1. Indian Monsoon remains one of the most complex geophysical phenomena. In light of the statement explain the mechanism of the onset of the Indian monsoon.

Approach

- Start the answer by briefly describing the phenomenon of Indian monsoon.
- Explain the mechanism of the onset of the Indian monsoon.
- Conclude suitably.

1. PM-KISAN has the potential to break the cycle of intergenerational poverty and the low income of farmers. Critically Discuss.

Approach

- Start the answer by briefly mentioning the objective of PM-KISAN.
- Highlight how PM-KISAN can help farmers.
- Conclude Suitably.