

SCIENCE AND TECHNOLOGY**Space Economy in India**

According to a recent report from the World Economic Forum (WEF), the global space economy will reach a value of \$1.8 trillion by 2035, nearly identical to the scale of the world semiconductor industry.

- The report titled 'Space: The \$1.8 Trillion Opportunity for Global Economic Growth', is authored by the WEF and consulting firm McKinsey & Co.

What is the Space Economy?

- The Space Economy is defined by the OECD as the full range of activities and the use of resources that create value and benefits for human beings in the course of exploring, researching, understanding, managing, and utilizing space.
- The term 'space economy' covers the goods and services produced in space for use in space.

Current Trends in the Space Economy:

- Economic Growth in Space Sector: The Space Report 2022 estimates that the space economy was worth \$469 billion in 2021 – a 9% increase from a year earlier.
- Global space market is projected to reach \$1 trillion by 2040.
- Rise in State-Backed Investment: According to the Space Foundation report, there has been an increase in state-backed investment in space projects around the world.
- There was a 19% jump in overall government spending on military and civilian space programmes in 2021.

Drivers of Space Economy:

- Decrease in Launch Cost: Rapid and large drop in launch costs of satellites and rockets, which has fallen 10-fold over the past 20 years.
- Price of Data and Connectivity: It is also expected to drop by at least 10 percent as demand increases by 60 percent by 2035.
- Commercial Innovations: Example, improvement in resolution of Earth-observation technology, which in turn drives down the price to access the said technologies.
- Diversification of Technologies: There is a rapid diversification of space-based technologies and activities such as space tourism.
- Cultural Awareness: Cultural awareness and general enthusiasm for space in recent days is also a major driver of interest in space for future generations.
- Catalysts of Expansion:
 - Various industries are both drivers and beneficiaries of growth and diversification by improving three key aspects of space technology:
 - Harmonisation
 - Increasing ease of usability and accessibility, and
 - Education and awareness of growing technology.
 - New Space Entrepreneurship has emerged in India with many start-ups which seek value in exploring end-to-end services in the Business-to-Business and Business-to-Consumer segments using New Space.

Space Economy in India:

- Share in Global Space Economy: At current, the space sector in India accounts for around two percent of the global space economy.
- India's space economy has the potential to reach \$44 billion by 2033 with about 8 per cent of the global share.
- Size of the Indian Space Economy: It is estimated around 8.4 Billion USD. Of this, the downstream services market, primarily of communication and data applications, accounts for close to 80% of the total space economy, wherein the private sector is a major contributor.
- The upstream market i.e. satellite and launch operations, is primarily contributed by the Government, with the private sector in a vendor oriented role towards manufacturing and delivering subsystems/components.
- Compound Annual Growth Rate (CAGR): As per the various market surveys, the space economy has grown with an average CAGR of 8%.
- Rise in Number of Space Start-Ups: As per DPIIT Start-Up India Portal, the number of Space Start-Ups have increased from just 1 in 2014 to 189 in 2023.
- The investment in Indian Space Start-Ups has increased to \$ 124.7 Million in 2023.
- Increasing Role of Private Sector: Private companies are exploring satellite-based communication solutions, Satellite integration and testing facilities.

- The local manufacturing of the satellite subsystems and Ground systems are being taken up by the private sector.
- Ex- SpaceX, Virgin Galactic, Blue Origin and Arianespace offer launch services and space tourism.
- Rise in Satellite Launches: There is an increase in the number of launches accomplished by the ISRO. Out of the 424 foreign satellites launched by Isro since 1990s, 389 (more than 90%) were launched in the last nine years.
- India earned \$174 million from launching of foreign satellites.

Steps taken to boost space economy in India:

- Indian Space Policy, 2023: It enables end-to-end participation of Non-Governmental Entities (NGEs) in all domains of space activities.
- FDI Norm under Automatic Route: The policy allows up to 100 percent investment under automatic route for the manufacturing of components, systems and subsystems for satellites, ground segments and user segments.
- For manufacturing and operating an entire satellite, up to 74 percent investment will be allowed under the automatic route.
- FDI Norm under Government Approval Route: Anything beyond the limit will have to go through a government approval process.
- Under the current policy, any foreign investment in manufacturing and operating satellites is allowed only with government approval.
- ASAT Capability: On 27 March 2019, India tested an anti-satellite weapon during an operation code named 'Mission Shakti'.
- The test put India on an equal footing to US, Russia and China, the countries with such capability in the world till date.
- IndSpaceX: First table-top space warfare exercise – IndSpaceX, demonstrated integrated satellite communications and reconnaissance for enhanced intelligence and firepower.
- Defense Space Agency (DSA): In 2019, India established the DSA and the Defense Space Research Organisation (DSRO).
- The DSRO, resembling a U.S. fighter command, coordinates space assets across military branches.
- The DSA, a research organisation, integrates civilian space technology for military applications.
- Chandrayaan-3: launch the Chandrayaan 3 spacecraft to achieve a soft landing of a robotic lander on the moon's surface.
- Aditya L1 mission: The Indian Space Research Organisation (ISRO) launched Aditya L-1, its first space-based mission to study the Sun.
- Bharatiya Antariksha Station: India plans to set up 'Bhartiya Antariksha Station' (Indian space station) by 2035 and take the first Indian to the Moon by 2040.

Opportunities Offered by the Space Economy:

- Advancing Scientific Knowledge: A space station enables India to conduct cutting-edge research in various fields—such as astronomy, biology, physics, medicine and engineering.
- It will provide a unique platform for studying the effects of microgravity and the space environment on various phenomena and processes.
- A space station will also facilitate the development and testing of new technologies and applications for space exploration and utilization.
- Enhancing the Nation's Prestige: It will showcase India's achievements and capabilities in space and demonstrate its commitment and leadership in advancing humanity's frontiers.
- It will inspire and motivate the next generation of scientists, engineers and explorers. A space station will also foster a sense of national identity and pride among Indians.
- Promoting Global Cooperation & Peace: It will offer opportunities for collaboration and exchange with other countries and organizations in space.
- This will thereby foster a spirit of cooperation and mutual understanding among the participants and contribute to the peaceful use of outer space.
- This will also support the global goals of sustainable development and social welfare.
- Space Mining: Asteroids are rich in precious resources crucial for industries. They offer an alternative with abundant reserves, avoiding environmental concerns tied to wildlife harm during extraction.
- Space mining is driven by demand for critical metals essential in electronics, solar panels, wind power, and electric car components.

Challenges in the Development of Space Economy:

- Space Debris: According to NASA, there are more than 100 million pieces of space debris at a size of one millimetre or larger orbiting the Earth.

- This debris can include non-functional spacecraft, abandoned equipment, and mission-related debris travelling at speeds up to 17,500 miles per hour (28,160 kilometres per hour).
- Even a tiny piece of debris can damage a satellite or spacecraft.
- Lack of Regulatory Ecosystem for Startups: The start-ups in India are yet to take off in the absence of regulatory clarity.
- Hence, they need an enabling ecosystem, a culture of accelerators, incubators, venture capitalists, and mentors that exist in cities like Bengaluru which is where most New Space start-ups have flourished.
- India has to transform these start-ups into full-fledged industries to accelerate India's dominance in space.
- Cyber Attacks: The draft National Cyber Security Strategy lacks a focus on space security, despite concerns raised by the Data Security Council of India about potential attacks on critical infrastructure, including space agencies.
- Minimal Share in Global Economy: India's share is estimated at just 2% of the global market.
- Over a third of transponders used for Indian services are leased from foreign satellites and this proportion will rise as the demand grows.
- Thus, India needs to collaborate with partners to increase its share in the global space market.
- Unidentified Anomalous Phenomena (UAP): The Indo-Tibetan Border Police (ITBP), have consistently reported UAP sightings. India is lagging significantly behind other nations in addressing the UAP issue.
- UAPs denote flying objects linked to non-human (alien) intelligences.
- Human Spaceflight Expertise: India lacks experience in human spaceflight, which is essential for building and operating a space station.
- Hazards to Astronaut Health: The space environment can be lethal without the correct protection equipment and precautions.
- The greatest threats are a lack of oxygen and pressure in closed environments; expansion of the cerebral ventricles, altered gravity fields; radiation and the psychological effects of isolation and confinement.

Way Forward:

- Integrating space into the National Cyber Security Strategy: There is a need to integrate critical cybersecurity safeguards into India's national space policy, aligning it with the National Cyber Security Strategy and National Security Strategy.
- India needs to implement a Purple Revolution, incorporating cybersecurity red and blue teaming exercises under the Ministry of Defence and Home Affairs to enhance offensive and defensive capabilities.
- ISRO defends against more than 100 cyberattacks each day.
- India needs to emulate the US and prepare satellite hacking sandboxes that can be experimented with to find system vulnerabilities.
- Increasing Space Budget: The space budget allocation must be increased from 0.04 percent to at least 0.5 percent of GDP to boost research centres and space standards.
- Indian Space Resilience Agency: India must enhance space supply-chain resilience and security within QUAD's space cooperation, establishing a central Indian space resilience agency for joint monitoring and incident response exercises.
- Permanent Body for UAP: India must establish a permanent body for UAP research under the Defence Ministry like the US and UK or under ISRO, on the French model.
- India must introduce protocols for military and civilian reports while synchronizing the land, sea and space surveillance capabilities.
- Given India's ancient civilization, and the long history of UAP sightings, there is a possibility of UAP-related artifacts lying within its soil and waters.
- Incentivising Startups: India must strategically incentivise startups for innovative space logistics solutions, aligning with the success of its satellite launch program.
- Like the US and Luxembourg, an easy regulatory and tax regime will greatly incentivise the growth of the space industry.
- Protection from Space Debris: Presently, India relies on data compiled by NASA to ascertain threats to its orbital assets. Thus, protection from space debris needs to track potentially threatening debris and change the course of the functional hardware.
- Future solutions can include more accurate tracking of debris and measures to lower their orbit for eventual burn out in the atmosphere.

- Closer association with Inter Agency Space Debris Coordination Committee (IADC) and developing satellite bodies which can withstand minor impacts are some of the other steps which can be taken.
- Advancing Space Capabilities: This can be done by developing sophisticated space-based weaponry including hard kill guided missile systems, jamming devices, directed energy weapons, and electromagnetic pulse systems for space-to-space operations.
- Both soft and hard kill systems, such as jammers and directed energy weapons, are crucial components for Outer Space Warfare.
- Creation of Space Force: India may create a Space Force, mirroring the U.S., to strengthen satellite network defence and take assertive actions against adversary networks in the evolving space security landscape.
- Training Astronauts for Space Flights Program: India will have to train a team of astronauts and ensure their safety and well-being in space.
- India will also have to develop reliable launch vehicles and spacecraft that can transport crew and cargo to and from the space station.

Import restrictions' on solar PV cells

Recently, the government has imposed import restrictions to increase local sourcing of solar modules to support India's renewables manufacturing ecosystem.

- The Ministry of New and Renewable Energy (MNRE) re-implemented the ALMM list to promote domestic manufacturing capabilities and support India's renewables ecosystem.

What is the ALMM?

- The ALMM list stands for Approved List of Models and Manufacturers of Solar Photovoltaic (PV) Modules.
- The ALMM is a list of solar PV module manufacturers eligible for use in government projects, including those set up for electricity sale to central and state governments.
- It was initially introduced in 2021 but was kept in abeyance for the past financial year.

Reason for Re-implementation of ALMM list

- Support Domestic Manufacturing: The ALMM list prioritizes domestically manufactured solar equipment for government projects.
- This aims to boost India's renewable energy sector and reduce reliance on imports.
- Improved Production Capacity: The government believes domestic manufacturers have increased production capacity and can now compete with cheaper imports.
- This is also a major reason for justifying re-implementation of the ALMM list.
- Import Substitution: The focus is on import substitution for encouraging domestic manufacturing to meet local demand for solar equipment. However, imports have not been restricted entirely.

Statistics of India's Solar Cell Imports

- **Import Reliance:**
India heavily relies on imports to meet its demand for solar cells and modules. China and Vietnam are the primary suppliers of these products.
- **Import Statistics:**
Over the past five years, India imported around \$11.17 billion worth of these products. This amounts to around 0.4% of India's total exports during the same period.
- **Dominance of China:**
China supplies 53% of India's solar cell imports and 63% of solar PV module imports.

Reasons for India to rely on Solar Cell Imports

- Dominant Manufacturing Capacity of China: China possesses over 80% of the manufacturing capacity across all stages of solar cell production (polysilicon, wafer, cell, and modules). In addition to the above, China has a well-established solar cell supply chain, with readily available raw materials, skilled labor, and efficient manufacturing processes. This allows them to produce and deliver solar cells quickly and reliably.
- Lower Manufacturing Capacity in India: India's domestic manufacturing capacity is significantly lower compared to China, and it's primarily focused on the final stage (modules) rather than the entire production process.
- Cost Competitiveness: China's large-scale production (80% manufacturing capacity), lower cost, and supportive government role in prioritizing solar PV as a strategic sector make it able to provide solar cells at competitive prices. In China, electricity accounts for more than 40% of production costs for polysilicon and almost 20% for ingots and wafers.

- **Limited Domestic Alternatives:** Until recently, India lacked strong domestic alternatives to Chinese imports. The Production Linked Incentive (PLI) scheme aims to change this, but it will take time for domestic manufacturers to ramp up production and compete effectively.

India's Policies to Reduce Reliance on China for Solar Cell Imports:

India has taken three significant steps to address its over-dependence on solar imports over the past five years.

- **ALMM order:** The process began with the introduction of the ALMM order in January 2019. The issue gained prominence during the COVID-19 pandemic due to severe global supply chain disruptions.
- **PLI scheme:** In response, Finance Minister Nirmala Sitharaman proposed the ₹19,500 crore PLI scheme in the Union Budget of 2022-23.
 - **Objective:** To enhance domestic manufacturing across the entire solar supply chain, from polysilicon to solar modules.
- **Implementation of high import duties:** Government imposed duties to encourage domestic production.
 - 40% customs duty on solar PV modules
 - 25% customs duty on solar PV cells (These duties were later reduced)
 - These duties were later reduced as solar capacity additions slowed down.
 - As per Reuters, It occurred because Some developers charged low tariffs to secure power purchase contracts, which increased cost pressure on projects with a capacity of about 30 GW.

Objectives of India's Policies to Reduce solar cells imports

- Promote domestic manufacturing of solar equipment in India.
- Reduce dependence on imports, particularly from China.

Make solar power generation more cost-competitive in the long run.

PRELIM FACT

1. IPEF's Clean Economy Investor Forum

Recently, the IPEF organized a Clean Economy Investor Forum in Singapore.

About

1. The IPEF Clean Economy Investor Forum is one of the initiatives under the IPEF. The Forum aims to mobilize investments into sustainable infrastructure, climate technology and renewable energy projects.
2. It brings together the region's top investors, philanthropies, financial institutions, innovative companies, start-ups and entrepreneurs.
3. Managed by: Invest India (India's National Investment Promotion Agency).

opportunities for the Indian industry

The Forum will have opportunity for the Indian industry in the two following track:

- a) **Climate Tech Track:** This track is open for top climate tech companies and startups from member countries, including India, to present their innovations to global investors. It focuses on recognizing leading enterprises in climate technology.
- b) **Infrastructure Track:** This track highlights ready-to-invest sustainable projects in energy (solar, wind, hydrogen), transport (EVs, charging stations), and waste management, to be showcased at the 2024 Forum in India.

Indo-Pacific Economic Framework for Prosperity (IPEF)

1. The Indo-Pacific Economic Framework for Prosperity (IPEF) is an economic initiative launched by U.S.A President Joe Biden in 2022.
2. **Objective:** It provides a platform for countries in the region to collaborate on advancing resilient, sustainable, and inclusive economic growth, and aims to contribute to cooperation, stability and prosperity in the region.
3. **Members:** It has 14 partners – Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, U.S.A and Vietnam.
4. **Nodal agency:** Department of Commerce for the IPEF engagements
5. The IPEF comprises four pillars of cooperation namely: Trade, Supply Chain, Clean Economy and Fair Economy.

2. Credit-deposit ratio

Banks in India are facing challenges in attracting deposits during the financial year 2023-24.

- According to data from the RBI, the credit-deposit ratio, indicating the proportion of a bank's deposit base used for loans, has reached its highest level in at least 20 years due to increased loan uptake, particularly in categories like home loans and other consumption loans.
- Currently standing at 80%, the credit-deposit ratio is at its highest since 2015.
- Customers are opting for high-return, equity-linked products, reducing the funds available for deposits in banks.

In FY24, while deposits grew by 13.5% to ₹204.8 trillion, non-food credit grew by 20.2% to ₹164.1 trillion, outpacing deposit growth.

This contrasts with FY23, where deposits grew by 9.6% and credit by 15.4%.

About Credit- deposit ratio:

- The credit-deposit ratio is a financial metric used to assess the relationship between a bank's lending activities (credit) and its deposit base.
- It is calculated by dividing the total loans extended by the bank by its total deposits. The ratio indicates how much of a bank's deposits are being used to provide loans.
- A higher credit-deposit ratio suggests that a larger portion of the deposits is being lent out as credit, while a lower ratio indicates that more deposits are being held in reserve or invested in other assets.
- It is an important measure of a bank's liquidity and lending capacity.

3. Air-breathing magnesium-copper / Cupric Oxide Fuel Cell

Researchers at the University of Kerala have developed an eco-friendly fuel cell that primarily utilizes air and seawater to generate power.

- The 'Air-breathing Magnesium – Copper / Cupric Oxide Fuel Cell' is highlighted in the 'Journal of Engineering and Applied Science.'
- The technology is anticipated to outperform lithium-ion batteries in power output.
- Unlike traditional fuel cells that use hydrogen, this cell relies on magnesium and sodium chloride from seawater.
- By employing cupric oxide over copper substrate, the cell becomes cost-effective compared to platinum-based alternatives

The Magnesium-Copper / Cupric Oxide Fuel Cell is an eco-friendly technology developed to generate power primarily using air and seawater.

This innovative fuel cell produces electricity and heat during operation while emitting water, making it environmentally clean.

It employs cupric oxide grown over a copper substrate in a magnesium-sodium chloride-based system.

Compared to traditional fuel cells, it offers cost-effectiveness by utilizing semiconductor material instead of platinum for air cathode systems.

4. C-Dome defence system

- The C-Dome is the naval version of Israel's Iron Dome missile defence system.
- It was deployed for the first time as a response to a "hostile aircraft" entering Israeli airspace near Eilat.
- Similar to the Iron Dome, which intercepts rockets fired from Gaza, the C-Dome uses radar to detect incoming threats and destroys them with its own missiles.
- Unlike the Iron Dome, the C-Dome is mounted on ships and integrated into the ship's radar. It provides full-circular protection against maritime and coastal threats.
- The system was tested on Sa'ar 6-class corvettes, German-made warships used by the Israeli Navy, and was declared operational in November 2022.
- The C-Dome employs TAMIR interceptors, a modular Vertical-Launch Unit (VLU), and a Command & Control (C2) component to detect and track threats at sea.

5. Peace Clause at WTO

India has invoked the peace clause at the World Trade Organization (WTO) for the fifth consecutive time. This is because India has breached the prescribed subsidy limit for rice offered to its farmers.

About Peace Clause

Introduction-At the Bali ministerial meeting in December 2013, WTO members agreed to temporarily implement a mechanism known as the Peace Clause. They also pledged to work on a permanent solution through negotiations.

Description- According to global trade rules, a WTO member country's food subsidy bill shouldn't exceed 10% of the value of production, based on the reference price of 1986-88. Subsidies over and above the prescribed ceiling are seen as trade-distorting.

Concerns- India has been complaining that 10 per cent subsidy ceiling is calculated on the basis of the reference price of 1986-88. This reference price has become outdated long ago.

Note-De minimis-This is the minimal amounts of domestic support that is allowed, even though it may distort trade. In case of developed countries, the de minimis limit or ceiling is up to 5 % of value of production and 10 % in case of developing nation.

ANSWER WRITING

Q. Explicate the limitations of government interventions in controlling food inflation in India. How to best manage food inflation without adverse effects?

In recent times, Consumer food prices in August 2023 were 9.9% higher in comparison to same month of the previous year with food inflation now largely limited to cereals and pulses. Despite government efforts to curb this trend, there are significant challenges in effectively managing and reducing food inflation.

Limitations of Government Interventions:

- **PDS Leakages:** Despite improvements, the PDS is still hampered by diversion and pilferage of grains. Reports from the Comptroller and Auditor General (CAG) have repeatedly highlighted these inefficiencies **with large amounts of grains (40 to 50 percent) being pilfered and diverted to the open market.**
- **Hoarding and Black Marketing:** As seen in 2019, onions when its prices multiplied due to hoarding. Despite warnings, delayed government action allowed traders to manipulate the market, showing how policy lags can exacerbate price swings.
- **Supply Chain Inefficiencies:** As observed during COVID-19 lockdowns which highlighted the vulnerability of India's food logistics. Disruptions in transportation led to perishable goods like fruits and vegetables spiking in price.
- **Climatic Vulnerabilities:** Agriculture in India is heavily dependent on the monsoon season. Deviations, such as the unseasonal rains in 2019, can decimate crops, as seen with onions and tomatoes in major producing states like Maharashtra and Karnataka, leading to supply shortages and price inflation.
- **Import-Export Policy Delays:** For example, 2016 delay in reducing import duties on pulses, despite rising prices, resulted in prolonged inflation, highlighting the need for more agile policy responses to global and domestic market conditions.

Strategies to Best Manage Food Inflation Without Adverse Effects:

- **Robust Market Intelligence:** Enhance market intelligence through the establishment of an integrated system like **AGMARKNET** (Agricultural Marketing Information Network) which can be further advanced to predict pricing trends using AI and big data analytics.
- **Growth of Food Processing:** Scale up the food processing industry, using models like the 'Mega Food Parks' initiative, which can add value to agricultural produce and stabilise prices through reduced wastage.
- **Direct Farm to Consumer Models:** Encourage direct farm-to-market channels exemplified by startups like 'Ninjacart' which directly connect farmers to retailers and consumers, minimising intermediaries.
- **Futures Trading and Price Hedging:** Develop futures markets, as done with NCDEX (National Commodity and Derivatives Exchange), to allow farmers and buyers to hedge prices, offering stability in income and expenses.
- **Efficient Stock Management:** Enhance buffer stock management through digitization and real-time monitoring, drawing lessons from the success of online platforms like e-NAM (National Agriculture Market) which has improved market efficiency.
- **Adoption of Agri-tech:** Invest in agricultural technology, drawing inspiration from projects like 'Digital Green', which helps farmers improve yield with modern farming techniques and better predictability of output.
- **Promoting Diversification:** Encouraging farmers to diversify into less water-intensive and high-value crops like oilseeds and pulses can reduce import dependency and stabilise prices. Simultaneously, promoting food processing industries can increase the shelf life and market value of agricultural produce.

Adopting a multi-pronged strategy that integrates technology, policy reforms, and market intelligence can lead to sustainable management of food inflation, ensuring food security and equitable economic growth for both consumers and agricultural producers in India.

MCQs

1. Consider the following statements with reference to Cluster Development Programme SURAKSHA:
 1. The digital platform will disburse subsidies to the horticulture farmers.
 2. The platform will utilize the e-RUPI voucher from the National Payment Corporation of India.
 3. The platform will provide subsidies to farmers at the time of marketing of the horticulture produce.
 How many of the above statements are correct?
 - a) Only one
 - b) Only two
 - c) All three
 - d) Non
2. With reference to TSAT-1A, consider the following statements:
 1. TSAT-1A is India's first privately built sub-meter resolution earth observation satellite.
 2. It will deliver high-resolution optical images and bring back samples to Earth.

3. It was placed in space as part of the mission Bandwagon-1 on SpaceX's Falcon 9.
 How many of the above statements are correct?
 a) Only one
b) Only two
 c) All three
 d) None
3. The Hormuz Strait is a strategically important waterway located between:
 a) Iran and Saudi Arabia
 b) Oman and Yemen
c) Iran and Oman
 d) United Arab Emirates and Qatar
4. Consider the following statements:
 1. Telemedicine can help in the reduction of carbon emission.
 2. Teleconsultations increases the disparity in healthcare access between rural and urban populations.
 Which of the statement(s) given above is/are correct?
a) 1 only
 b) 2 only
 c) Both 1 and 2
 d) Neither 1 nor 2
5. Which of the following statements regarding Hepatitis is/are correct?
 1. Staphylococcus aureus is the primary causative agent of Hepatitis B.
 2. The Mantoux test is used to monitor blood sugar in Hepatitis B patients.
 Select the correct answer using the codes given below:
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2
6. Consider the following statements:
 1. Approved List of Models and Manufacturers of Solar Photovoltaic [PV] Modules' (ALMM list) comprises manufacturers whose solar PV modules are eligible for use in various government projects and schemes.
 2. India's half of the imports demand for solar cells and modules come from the United States.
 3. The Indian government has set a target of achieving 500 GW of installed capacity from non-fossil fuels by 2030.
 How many of the statements given above are correct?
a) Only one
b) Only two
 c) All three
 d) None
7. Consider the following pairs:
 Festivals-----States
 1. Ugadi-----Telangana
 2. Gudi Padwa-----Maharashtra
 3. Puthandu-----Karnataka
 Which of the above pairs are correctly matched?
a) 1 and 2 only
 b) 2 and 3 only
 c) 1 and 3 only
 d) 1, 2 and 3
8. What does the credit-deposit ratio measure in the banking sector?
 (a) The ratio of loans disbursed by a bank to its total assets.
 (b) The ratio of a bank's total deposits to its total liabilities.
(c) The ratio of loans disbursed by a bank to its total deposits.
 (d) The ratio of a bank's profits to its shareholders' equity.
9. Consider following assertions pertain to the "Magnesium-Copper / Cupric Oxide Fuel Cell":
 1. It utilizes hydrogen gas as the fuel source.
 2. It operates at low temperatures, making it suitable for portable applications.
 3. It releases carbon dioxide as a byproduct of the reaction.
 How many of the above statements is/are correct?
(a) Only one
(b) Only two
(c) All three
(d) None
10. Consider the following statements:
 1. C-Dome is an advanced missile defense system developed by China, while Iron Dome is a similar system developed by Israel.
 2. Iron Dome is a maritime variant of C-Dome, designed specifically for naval defense operations.
 3. C-Dome and Iron Dome are both air defense systems, with C-Dome being developed by Israel and Iron Dome by China.
 How many of the above statements is/are correct?
(a) Only one
(b) Only two
(c) All three
(d) None