

International Relations/ Science and Technology

Artemis Accords

IN CONTEXT: India is the 27th country to sign the Artemis Accords, which establish a practical set of principles to guide space exploration cooperation among nations participating in NASA's Artemis program.



About Artemis Accords:

- ✓ The Artemis Accords are a non-binding set of principles designed to guide civil space exploration and use in the 21st century.
- ✓ These principles will help to ensure the maintenance of a safe and predictable outer space environment.
- ✓ NASA, in coordination with the U.S. Department of State, established the Artemis Accords in 2020, together with seven other founding member nations.
- ✓ Artemis Accords signatories as of May 30, 2023: Australia, Bahrain, Brazil, Canada, Colombia, Czech Republic, France, Israel, Italy, Japan, Luxembourg, Mexico, New Zealand, Nigeria, Poland, the Republic of Korea, Romania, Rwanda, Saudi Arabia, Singapore, Spain, Ukraine, the United Arab Emirates, the United Kingdom, and the United States.

NASA's Artemis Program:

- ✓ With the Artemis programme, NASA aims to land humans on the moon by 2024, and it also plans to land the first woman and first person of colour on the moon.
- ✓ With this mission, NASA aims to contribute to scientific discovery and economic benefits and inspire a new generation of explorers.

Principles:

- ✓ **Peaceful Purposes:** Consistent with the Outer Space Treaty, the Artemis Accords affirm that cooperative activities should be exclusively for peaceful purposes and in accordance with international law.
- ✓ **Transparency:** Artemis Accords signatories are committed to the broad dissemination of information regarding their respective national space policies and space exploration plans in accordance with their national rules and regulations.
- ✓ **Interoperability:** Interoperability enhances the potential for space exploration that is safe and robust among cooperating nations.
- ✓ **Emergency Assistance:** Accords signatories commit to taking all reasonable efforts to render necessary assistance to personnel in outer space who are in distress and acknowledge their obligations under the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.
- ✓ **Registration of Space Objects:** Appropriate registration of space objects can help to mitigate the risk of harmful interference. The Artemis Accords reinforce the importance of meeting the obligations under the Registration Convention.

- ✓ **Release of Scientific Data:** Sharing scientific data with the global community in a timely and transparent manner.
- ✓ **Protecting Heritage:** Accords signatories intend to preserve historically significant human or robotics landing sites, artifacts, spacecraft etc.
- ✓ **Space Resources:** The utilization of space resources should be done in a manner that complies with the Outer Space Treaty, can benefit humankind and is critical to sustainable operations.
- ✓ **Deconfliction of Activities:** Artemis Accords signatories needs to provide notification of their activities, including regarding the location and general nature of their operations, and coordinating with any relevant actor to avoid harmful interference. The area covered by the notification and coordination is referred to as a “safety zone.”
- ✓ **Orbital Debris and Spacecraft Disposal:** Planning to mitigate for orbital debris, as well as disposing safely of spacecrafts, is critical to maintaining a safe environment in space and operating in space sustainably.

In case of India:

- ✓ During his state visit to the United States this week, Prime Minister Narendra Modi signed the Artemis Accords with the nation's national space administration, as confirmed by the White House. This agreement holds significant importance for India to establish itself as a global space power.
- ✓ Furthermore, the National Aeronautics and Space Administration (Nasa) and the Indian Space Research Organisation (Isro) have also agreed to launch a joint mission to the International Space Station (ISS) in 2024.

Why joining the Artemis Accords is an important step for India?

- ✓ India's decision to join the Artemis Accords highlights its dedication to global space cooperation and a keen interest in participating in lunar exploration missions. By becoming a signatory, India can collaborate with other nations, including the United States, in future Moon missions.
- ✓ This collaboration enables the sharing of knowledge and expertise, contributing to the advancement of scientific research, technological development, and the expansion of humanity's presence in space.
- ✓ Furthermore, as part of Prime Minister Modi's state visit, several US companies will partner with India to establish a semiconductor ecosystem that promotes diversification in the supply chain. Micron Technology, with the support of the Indian National Semiconductor Mission, recently announced a significant investment of over \$800 million.
- ✓ Alongside additional financial backing from Indian authorities, this investment will create a \$2.75 billion semiconductor assembly and test facility in India. These developments highlight the growing collaboration between India and the United States in the field of technology and innovation.

Government policies

In Context: With the nationwide unemployment rate increasing, creating jobs will remain a key challenge for the government.

Status of job creation & recruitments in India

Slowdown:

- ✓ While IT/ITeS companies and startups predominantly lead the slowdown in job creation, most other industries are going slow in their recruitment plans.
- ✓ According to a recent report, about 2.25 lakh active jobs are open in the market as per hiring firms, about 1 lakh fewer than a year earlier.
- ✓ Specialised hiring firms claim that the white-collar workforce has taken a severe beating.

No job security:

- ✓ The concept of job security has lost its relevance.
- ✓ In recent months, tech giants such as Google, Microsoft, IBM, Meta, Amazon, Cognizant, and big startups such as Byju's and Ola have fired thousands of employees in India.

Demand for skills & IT professionals:

- ✓ In some sectors, tech talent continues to be in demand as non-tech industries undergo a digital transformation.
- ✓ Several companies in banking and non-banking, hospitality, automobiles, manufacturing, pharmaceuticals, and education are seeking skilled IT talent to drive their digital progress.

- ✓ On the flip side, there is still some hope for blue- and grey-collared employees, according to hiring firms.

Reasons & challenges

1. Reasons are varied:

- ✓ Cost-cutting, tough macroeconomic conditions, reduced revenue visibility, and a freeze on fresh hirings after a few quarters of over-hiring.
- ✓ In several cases, the companies have blamed it on the ‘underperformance’ of the staff.

2. AI & possible job loss:

- ✓ The other culprits are artificial intelligence and data analytics.
- ✓ According to experts, AI would take over 7,800 human jobs in the next five years as an eye-opener.
- ✓ AI could replace some back-office functions and human resources.
- ✓ Tech giants are realigning their human resources and looking for people with skill sets in areas like AI and machine learning to replace the existing staff who do not possess the required skills for futuristic tech services and tools.

3. Job opportunity & qualification mismatch:

- ✓ India presents a paradox of skill shortages while being labour surplus.
- ✓ Trucks are idle because of the shortage of drivers. The steel industry needs more metallurgists.
- ✓ The healthcare sector is short of nurses and technicians.
- ✓ The construction sector needs civil engineers, hi-tech welders, bricklayers, and so on.

4. Sector-specific mismatch:

- ✓ India’s economic growth has been largely services led, with a small pool of skills at the upper end, given a glaring failure in mass education, while capital intensity has increased in manufacturing overall in spite of our labour abundance.

5. Low participation of women:

- ✓ One reason is essentially about the working conditions — such as law and order, efficient public transportation, violence against women, societal norms etc — being far from conducive for women to seek work.
- ✓ A lot of women in India are exclusively involved within their own homes (caring for their family) of their own volition.
- ✓ Lastly, it is also a question of adequate job opportunities for women.

Government initiatives

1. National Career Service (NCS) Project:

- ✓ Project for transformation of the National Employment Service to provide a variety of career related services like job matching, career counselling, vocational guidance, information on skill development courses, apprenticeship, internships etc.
- ✓ It is under the aegis of Ministry of Labour and Employment.

2. Pt. DeenDayal Upadhyaya Grameen Kaushlya Yojana (DDU-GKY):

- ✓ DDU-GKY is a part of the National Rural Livelihood Mission (NRLM), tasked with the dual objectives of adding diversity to the incomes of rural poor families and cater to the career aspirations of rural youth.

3. PM- SVANidhi Scheme:

- ✓ Prime Minister Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme aims to provide collateral free working capital loan to Street Vendors, vending in urban areas, to resume their businesses which were adversely affected due to COVID-1 induced lock-down.

4. Pradhan Mantri Kaushal Vikas Yojana (PMKVY):

- ✓ Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development & Entrepreneurship (MSDE) implemented by National Skill Development Corporation.

5. Rural Self-Employment and Training Institutes (RSETIs):

- ✓ RSETIs are Rural Self Employment Training Institutes, an initiative of the Ministry of Rural Development (MoRD) to have dedicated infrastructure in each district of the country to impart training and skill upgradation of rural youth geared towards entrepreneurship development.
- ✓ RSETIs are managed by banks with active cooperation from the Government of India and State Governments.

Suggestions & Way ahead

- ✓ Employment and unemployment in India have always been at the centre of discussion for the government and intellectuals alike.
- ✓ Employment in itself comes with some of its own issues,
- ✓ like lack of decent working conditions, exploitation of employees, absence of decent remuneration etc.

What can be done?

- ✓ Quality of education should be the cornerstone for the government and people alike.
- ✓ A favourable policy environment for businesses to start and grow with ease, and a bigger footprint in international markets will help.
- ✓ It is time we take the Skill development initiative undertaken by the government to be implemented effectively.
- ✓ Employment generation, coupled with improving employability should be the priority of the government

PRELIM FACTS**1. Global Liveability Index 2023**

In News: Recently, the Global Liveability Index 2023 was published.

About Global Liveability Index 2023

- ✓ It is published by the Economic Intelligence Unit (EIU) of the Economist.
- ✓ The concept of livability assesses the best or worst living conditions of cities based on 30 qualitative and quantitative factors across five broad categories of stability, healthcare, culture and environment, education, and infrastructure.
- ✓ It quantify the challenges that might be presented to an individual's lifestyle in 173 cities worldwide
- ✓ Assessing liveability has a broad range of uses, from benchmarking perceptions of development levels to assigning a hardship allowance as part of expatriate relocation packages.

Major Findings:

Top performers: The top rank of the liveable cities is dominated by European and North American cities.

- ✓ Asia-Pacific cities have made some of the biggest gains, accounting for eight of the top ten movers up the rankings as economies recover from the pandemic
- ✓ Vienna in Austria tops the ranking of the most liveable cities in the world followed by Copenhagen in Denmark, Melbourne, and Sydney on 3rd and 4th rank while Vancouver has been placed as the 5th best city on the liveability index.
- ✓ Among Asian countries, only Osaka in Japan features among the top 10 most liveable countries at number 9.

Worst performers: Damascus (Syria) and Tripoli (Libya) are still at the bottom of the list, held back by social unrest, terrorism and conflict. However, while Damascus has seen no improvement since last year, scores for Tripoli and other cities in the bottom ten have improved as the pandemic has receded.

Key Analysis : After the end of covid restrictions, the liveability index has shown a noticeable improvement across the world. The average index score among all 172 cities has now reached 76.2 out of 100.

- ✓ EIU's Liveability Index has risen significantly in the 2023 survey, reaching a 15-year high as the world moves on from the covid-19 pandemic and healthcare and education scores improve in many cities in Asia and the Middle East and Africa.
- ✓ However, scores for stability have slipped backward since last year, amid several instances of civil unrest around the world
- ✓ The war in Ukraine and the resulting economic and political disruption are affecting liveability in many European cities.
- ✓ From India, New Delhi and Mumbai are at 141st position and Chennai at 144th. Ahmedabad and Bengaluru are ranked 147 and 148, respectively, in the EIU list.

2. Joha rice

In context: Recently, scientists at the Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science and Technology, explored the nutraceutical properties of aromatic Joha rice.

About Joha rice:

- ✓ It is an indigenous rice of Assam.

- ✓ It is unique in aroma and grain characteristics and distinct from other aromatic rice like Basmati.
- ✓ It is grown in Sali/ Kharif season.
- ✓ Major Joha varieties included in this are Kola Joha, Keteki Joha, Bokul Joha and Kunkuni Joha.
- ✓ This rice is also rich in several antioxidants, flavonoids, and phenolics.
- ✓ It has got Geographical Indication (GI) tag.
- ✓ A recent study revealed that;
- ✓ This rice variety has two unsaturated fatty acids,, linoleic acid (omega-6) and linolenic (omega-3) acid.
- ✓ These essential fatty acids (which humans cannot produce) can help maintain various physiological conditions.
- ✓ Omega-3 fatty acid prevents several metabolic diseases such as diabetes, cardiovascular diseases, and cancer.
- ✓ It has also proved to be effective in lowering blood glucose and preventing diabetes onset in diabetic rats.

3. Zircon Missile:

In context: The Commander-in-Chief of the Russian Navy recently announced that all new Russian navy frigate and corvette class vessels would be equipped with hypersonic Zircon missiles.

About Zircon Missile:

- ✓ The 3M22 Zircon, or the SS-N-33, is a manoeuvring anti-ship hypersonic cruise missile developed in Russia.
- ✓ It can reach speeds of over 9,500 kilometres per hour (6,000 miles per hour), around nine times faster than the speed of sound.
- ✓ It's a two-stage missile that uses solid fuel in the first stage and a scramjet motor in the second stage.
- ✓ It can accurately pinpoint targets at a range of more than 1,000 kilometres (620 miles).
- ✓ Guidance System: Active and Passive Radar Seeker
- ✓ Hypersonic cruise missile is a type of missile that is designed to travel at extremely high speeds, typically 5 times the speed of sound
- ✓ They are powered by rocket engines and are typically equipped with guidance systems to help them navigate to their targets.

4. Abohar wildlife sanctuary

In context: A recent blackbuck census by the Wildlife Institute of India stated that the blackbucks 'are on the verge of extinction in Punjab.

About Abohar wildlife sanctuary:

- ✓ It is located in the state of Punjab.
- ✓ The entire area of Sanctuary is private or community-owned land of 13 Bishnoi villages.
- ✓ Flora: Albizia lebbeck, Acacia nilotica, Azadirachata indica, A. tortilis etc.
- ✓ Fauna: Wild Boar, Blue Fauna Bull, Porcupines, Hare, Jackal, etc.

Key facts about Blackbuck.

- ✓ It is the sole extant member of the genus Antelope found in India.
- ✓ It lives mainly in open grasslands or dry deciduous forests.
- ✓ The antelope is native to and found mainly in India (with a small population in Nepal and Pakistan).
- ✓ It is widespread in the states of Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and other areas throughout peninsular India.
- ✓ It has been declared as the state animal by the governments of Punjab, Haryana and Andhra Pradesh.

Conservation status:

- ✓ IUCN Red List: Least concerned.
- ✓ Wildlife Protection Act of 1972: Schedule I
- ✓ CITES: Appendix III

5. PM gifted "The Ten Principal Upanishads" Book to Biden

IN CONTEXT: Prime Minister Narendra Modi gifted US President Joe Biden a first edition print of the book "The Ten Principal Upanishads" during his visit to the White House.

About

- ✓ The book is an English translation of the Indian Upanishads, co-authored with Shri Purohit Swami, and published by Yeats in 1937. Yeats had a lifelong fascination with Indian philosophy and literature, and his interest in the Upanishads led to the co-translation.
- ✓ The book is considered one of the best translations, aiming to retain the original text's essence while being accessible to the general reader.

What are the Upanishads?

- ✓ Upanishads are one of the four texts that together compile each of the Vedas (Rig, Yajur, Sama, and Atharva). Vedas is a collection of poems or hymns written in Sanskrit.
- ✓ Upanishad is derived from upa (near), ni (down) and sad (to sit). Hence, the term implies the pupils, intent on learning, sitting near the teacher to acquire knowledge and truth. They serve to explore the fundamental principles of the religion.
- ✓ There are over 200 Upanishads, of these, only 10 are the principal Upanishads: Isha, Kena, Katha, Prashan, Mundaka, Mandukya, Tattiriya, Aitareya, Chhandogya and Brihadaranyaka.
- ✓ This ancient Hindu sacred text teaches how the "individual self (atman) finds the ultimate reality (brahman)" through an "inner spiritual journey".

Significance of Upanishads: The Upanishads are the most sacred late Vedic and post-Vedic Sanskrit texts which are considered to contain the ultimate truth and the knowledge that leads to spiritual emancipation.

How did Upanishads reach the West?

- ✓ Dara Shikoh, the eldest son of Mughal emperor Shah Jahan and Mumtaz Mahal, had a keen interest in the religions of the world.
- ✓ Dara, who lived from 1615 to 1659, translated the Bhagavad Gita and 52 Upanishads from Sanskrit to Persian.
- ✓ In 1775, Dara's translation was discovered by a French resident at the court of Shuja-ud-daula, Nawab of Awadh, who sent the copy to Anquetil Duperron, a popular French traveller.
- ✓ German philosopher Arthur Schopenhauer, who came across the book, became greatly impressed by the Upanishads, called them "the production of the highest human wisdom".
- ✓ Later, Famous American poets Ralph W Emerson, Walt Whitman and Henry David Thoreau have been credited for popularising this Hindu religious text in the US

ANSWER WRITING

Q. If the Indo-Pacific is about India's new maritime geopolitics, Eurasia involves the recalibration of India's continental strategy. In this context, examine the challenges in India's engagement with Eurasia. Suggest the elements that should form part of India's strategy towards Eurasia.

Introduction: The enormous Eurasian landmass, covering China in the east to Europe in the west, and the Arctic in the north to India in the south, embraces various powerful countries that are facing serious security and strategic challenges. The strategic importance of China's Belt and Road Initiative (BRI) intended to build a link to Eurasia pushes India to get more involved in the Eurasian region. India has certainly dealt with Eurasia's constituent spaces separately over the decades. What Delhi now needs is an integrated approach to Eurasia.

Importance of Eurasia

- ✓ Regional stability: emerging threats like ISIS combined with the region's porous borders in central Asia and the problem of drugs and arms necessitates achieving stability in the region.
- ✓ Rising China in the region
- ✓ Resources: Eurasian region is rich in natural resources, most notably energy resources, characterized by significant production and exports. Economic cooperation with these countries is vital for safeguarding India's interests.
- ✓ Energy security: The Eurasian states are prospective long-term partners in energy (oil, natural gas) and natural resources (that include uranium and iron ore).

Challenges for India to engage with Eurasia

- ✓ US withdrawal from Afghanistan: the withdrawal of the US/NATO forces from Afghanistan, the rise of Islamic fundamentalist forces and the changing dynamics of the historic stabilising role of Russia (most recently in Kazakhstan) have all set the stage for a sharpening of the geopolitical competition on the Eurasian landmass.
- ✓ Pakistan as an obstacle: Pakistan acts as a geographical barrier to have access to Europe and limits what India can do directly in Afghanistan.
- ✓ Assertive and expansionist China:

- Beijing's approach to the long and disputed border with Bhutan and India, its quest for a security presence in Tajikistan, the active search for a larger role in Afghanistan, and a greater say in the affairs of the broader sub-Himalayan region speak volume about its growing influence.
- The expansion of China's Belt and Road initiative across central Asia and Russia, onto the shores of the Atlantic, and Europe's growing economic interdependence with China have added to Beijing's powerful leverages in Eurasia.
- ✓ Growing proximity between China and Russia: China and Russia have one binding cause — disdain for the international order established by the West. The rules of trade, economic development and security in these regions are mainly controlled by China. Its sizable influence in regional organisations like the SCO, and the AIIB also provide China the institutional leverage to achieve this.

Way ahead:

✓ **Culture and connectivity:**

- Buddhism - can act as a civilization link to build meaningful alliances in the region.
- India-Eurasia Historical Ties: There are references to India's ancient civilisational links with Eurasia; the collaboration between the Sangha and the Shreni in the Buddhist era produced lasting interaction between the two regions.
- Cooperation in the area of connectivity with these countries could also be pursued under the SCO framework.

✓ **Engaging Europe:** Europe has the resources and capabilities to shape the region. Ex: Europe were the first to bring humanitarian assistance in Afghanistan

- India's Eurasian policy must necessarily involve greater engagement with both the European Union and the North Atlantic Treaty Organisation.
- A dedicated military office in the Indian mission to Brussels, where both EU and NATO are headquartered, will be a crucial step towards a sustained security dialogue with Europe.

✓ **Work with Russia:**

- India should seek to join Russia's "Greater Eurasian" corridor and the Northeast Passage to connect to the Far East and even Japan.
- While Indo-Russian differences on the Indo-Pacific, the Quad, China, and the Taliban are real, the two have good reasons to narrow their differences on Afghanistan and widen cooperation on continental Eurasian security.
- Moreover, Russia has cultivated links with the Taliban in recent years. India would need Russia's support in any form of direct engagement with the Taliban.

✓ **Substantive Indian Collaboration with Persia and Arabia:** If Persia's (Iran's) location makes it critical for the future of Afghanistan and Central Asia, the religious influence of Arabia is quite consequential in the region. India's partnerships with Persia and Arabia are also critical in overcoming Turkey's alliance with Pakistan that is hostile to Delhi.

✓ **Maritime links:** Facilitate regular and frequent shipping links between the ports in India (Mundra, Kandla & Mumbai) and Chabahar.

Conclusion: The current flux in Eurasian geopolitics will lessen some of the current contradictions and generate some new antinomies in the days ahead. But the key for India lies in greater strategic activism that opens opportunities in all direction in Eurasia.

MCQs

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| <p>1. Considered the following statement regarding "Bharat in Paris".</p> <ol style="list-style-type: none"> 1. The campaign has been launched by Indian Olympic Association (IOA) 2. To create awareness and promote sports across India ahead of the Paris Olympics game. 3. The 2024 Olympics will take place from 26 July to 11 August in France, at Paris. <p>How many pairs of the above statement is correct?</p> <ol style="list-style-type: none"> a) Only 1 b) Only 2 | <p>c) Only 3</p> <p>d) None</p> <p>2. Recently Global Liveability Index 2023 published choose the incorrect answers:</p> <ol style="list-style-type: none"> 1. It is published by the Economic Intelligence Unit (EIU) of the Economist. 2. Vienna in Austria tops the ranking of the most liveable cities. 3. From India, New Delhi and Mumbai are at 141st position. <p>How many pairs of the above statement is correct?</p> <ol style="list-style-type: none"> a) Only 1 |
|--|--|

- b) Only 2
c) **Only 3**
d) None
3. Considered the following statement:
1. Joha rice, aromatic rice cultivated in the Northeastern region of India.
 2. It is effective in lowering the blood glucose and preventing diabetes onset and hence is an effective nutraceutical of choice in diabetes management.
 3. Arunachal Pradesh is the largest cultivator of this rice.

How many pairs of the above statement is correct?

- a) Only 1
b) **Only 2**
c) Only 3
d) None
4. Considered the following statement regarding Abohar wildlife sanctuary:
1. It is located in the state of Punjab.
 2. The entire area of Sanctuary is private or community-owned land of 13 Bishnoi villages.

Which of the following statement is/ are correct?

- a) Only 1
b) Only 2
c) **Both 1 and 2**
d) None
5. Recently "Samosa Caucus" is in news, it is related with ?
- a) **The name given to an informal grouping of Indian-origin Americans.**
 - b) The name given to a formal grouping of Indian-origin Americans.
 - c) The name given to informal group of anti-terrorism.
 - d) Non of the above.

6. Consider the following statements:
1. William Butler Yeats was an Irish poet, dramatist, writer and politician.
 2. The English translation of the Indian Upanishads was done by William Butler.
 3. Shuja-ud-daula translated the Bhagavad Gita and 52 Upanishads from Sanskrit to Persian.

How many of the statements given above are correct?

- a) Only 1
b) **Only 2**
c) Only 3
d) None
7. The Indian cabinet has given its approval to Micron Technology's plan to invest \$2.7

billion in setting up a semiconductor testing and packaging unit in which state?

- a) Maharashtra
b) Tamil Nadu
c) **Gujurat**
d) Himachal Pradesh.

8. Considered the following statement:
1. India is the 27th country to sign the Artemis Accords
 2. The National Aeronautics and Space Administration (Nasa) and the Indian Space Research Organisation (Isro) have also agreed to launch a joint mission to the International Space Station (ISS) in 2024.

Which of the following statement is/ are correct?

- a) Only 1
b) Only 2
c) **Both 1 and 2**
d) None

9. Considered the following statement regarding Blackbuck.

1. Least concerned under IUCN Red List
2. It comes under Wildlife Protection Act of 1972: Schedule I

Which of the following statement is/ are correct?

- a) Only 1
b) Only 2
c) **Both 1 and 2**
d) None

10. Recently, Ministry of agriculture and farmers welfare launched PM KISAN Mobile APP, considered the following statement.

1. PM KISAN scheme is a center sector scheme with 100% funding from Government of India.
2. This is the first scheme of government to do e-KYC through facial authentication mobile app.

Which of the following statement is/ are correct?

- a) Only 1
b) Only 2
c) **Both 1 and 2**
d) None