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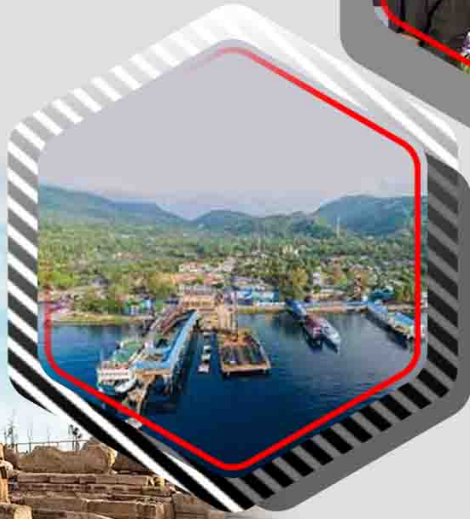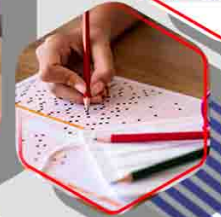
ACSA

WEEKLY Current Affairs

1st to 7th May 2023

For

UPSC / RPSC

and All Other Competitive **EXAMS**

- StarBerry Sense Payload
- Odisha for AI and AI for Youth Initiatives
- Developmental Plan for Konark Sun Temple Complex
- TOEFL Accepted Under Canada's Student Direct Stream
- Latest Periodic Labour Force Survey Figures
- Feasibility Study on Sabang Port

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StarBerrySense Payload :

The Indian Space Research Organization (ISRO) launched a low-cost star sensor called StarBerrySense on board its Polar Satellite Launch Vehicle (PSLV) C-55 rocket on April 22, 2023. Developed by the Indian Institute of Astrophysics (IIA), StarBerrySense's primary objective is to image the field of view, identify stars, and calculate the spacecraft's pointing direction.

The StarBerrySense sensor calculates the pointing direction by identifying the stars in its field of view. The sensor captures images of the stars and uses them to determine the spacecraft's attitude and orientation. This information is crucial for controlling the spacecraft's movement and keeping it on the right path.

Advantages of Using Star Sensor in Space Missions

The use of a star sensor in space missions provides the most accurate information about a spacecraft's orientation. This is because the sensor can identify stars in the background, which provides a fixed reference point for the spacecraft's position. It allows for precise control of the spacecraft's movements and reduces the risk of errors and malfunctions.

PSLV Orbital Experimental Module (POEM)

The PSLV Orbital Experimental Module (POEM) is a platform for carrying out scientific experiments in space. It provides a stable platform for scientific instruments and payloads, including StarBerrySense. POEM's primary purpose is to enable scientific experiments that require a stable and controlled environment in space.

What is 2023 FW13?

In a fascinating discovery, astronomers have recently identified an asteroid that behaves like a quasi-moon, orbiting Earth while being gravitationally bound by the Sun. This newfound celestial object, named 2023 FW13, has sparked excitement among space enthusiasts and offers a unique opportunity for scientific exploration.

The quasi-moon that has captured astronomers' attention is named 2023 FW13. To observe this celestial body, experts utilized the powerful Pan-STARRS telescope located atop the majestic Haleakala volcano in Hawaii. The precise observations from this telescope have allowed researchers to unlock remarkable insights into the nature and behavior of this extraordinary quasi-moon.

Quasi-moons, also known as quasi-satellites, exhibit a similar orbital pattern around our planet as our natural satellite, the Moon. These objects appear to orbit Earth while being influenced by the Sun's gravitational pull. This unique characteristic makes them intriguing subjects of study and piques the curiosity of astronomers.

Previous Discoveries and Comparisons

The discovery of 2023 FW13 as a quasi-moon is not the first of its kind. In 2016, astronomers identified a famous object called 469219 Kamooalewa, which was considered the tiniest, closest, and most stable known quasi-satellite at that time. The presence of multiple quasi-moons showcases the diverse and dynamic nature of celestial objects within Earth's vicinity.

Pan-STARRS observatory initially detected the presence of 2023 FW13 on March 28. Further observations were conducted using the Canada France Hawaii Telescope, Kitt Peak observatory, and Mount Lemmon observatory, providing additional data to comprehend the characteristics of this quasi-moon. These comprehensive observations allow astronomers to gather essential information and deepen their understanding of this celestial phenomenon.

Scientists estimate that the loop in which the quasi-moon moves has a radius of approximately 0.18 astronomical units. This significant radius further highlights the unique nature of 2023 FW13's orbit and distinguishes it as an exceptional quasi-moon.

Mo Ghara' (My House) Scheme:

The Odisha government, under the leadership of Naveen Patnaik, has recently announced a new housing scheme called "Mo Ghara" or "My Home." This initiative aims to transform kutcha houses into pucca ones. The scheme is expected to benefit around four lakh families in the state.

The implementation of the Mo Ghara scheme will require a financial implication of approximately Rs 2,150 crore over a two-year period. Under this scheme, eligible beneficiaries can avail a housing loan of up to Rs 3 lakh. The repayment period for the loan is set at 10 years, providing flexibility and ease of repayment for the beneficiaries.

Eligibility Criteria and Additional Subsidies

In order to be eligible for the Mo Ghara scheme, families must either reside in kutcha houses or possess at least one pucca room with a solid concrete roof. However, families with four-wheelers, members in government service, or possessing irrigated land of five acres or more are ineligible for the loan. Notably, beneficiaries belonging to the SC/ST category and the differently-abled will receive additional subsidies, making the scheme more inclusive and supportive of marginalized communities.

Application Process and Timelines

The Odisha government will begin accepting applications from beneficiaries for the Mo Ghara scheme starting from June 16. To ensure a seamless application process, the government has set up a dedicated portal where interested individuals can submit their applications.

Revamping Veer Surendra Sai University of Technology

In addition to the Mo Ghara scheme, the Naveen Patnaik-led cabinet has also approved a significant plan to revamp the Veer Surendra Sai University of Technology (VSSUT). This renowned engineering institution, established in 1956 and located in Sambalpur district, will undergo a comprehensive transformation under a budget of Rs 2,000 crore. The aim is to enhance the infrastructure and facilities of the university, further promoting quality education and research in the field of technology.

Odisha for AI and AI for Youth Initiatives

Odisha Chief Minister Naveen Patnaik recently unveiled two groundbreaking initiatives aimed at leveraging the power of Artificial Intelligence (AI) in the state. The initiatives, named 'Odisha for Artificial Intelligence' and 'Artificial Intelligence for Youth', are poised to make a significant impact on digital literacy, technological advancements, and economic growth.

The initial phase of the initiatives will focus on the cities of Bhubaneswar, Puri, and Cuttack. These cities will serve as the testing grounds for the comprehensive integration of AI solutions in various sectors. By launching these initiatives, the Odisha government aims to revolutionize the state's technological landscape and create a model for other regions to follow.

Promoting Digital Literacy and Technological Familiarity

One of the primary goals of the initiatives is to enhance digital literacy among the masses and familiarize them with cutting-edge technologies. By augmenting the digital skills of individuals, the initiatives aim to bridge the technological divide and empower citizens to thrive in an increasingly digital world. The State Electronics and IT Department, in collaboration with Intel India, has been instrumental in driving these efforts.

Envisioning Transformation and Empowerment

These initiatives are expected to be catalysts for economic growth, transformative governance, and the betterment of citizens' lives. By harnessing the potential of AI, Odisha seeks to create an ecosystem that fosters research, innovation, and application across various sectors. The initiatives are expected to unlock limitless possibilities, from improving service delivery to generating new avenues for employment and entrepreneurship.

AI Education for All with 'Odisha for AI' Course

As part of the initiatives, the 'Odisha for AI' course will be offered by Intel on its app/site. This free 4-hour course aims to educate residents of Bhubaneswar, Cuttack, and Puri about the fundamentals of AI. It serves as a gateway for individuals to gain insights into AI technologies, applications, and their potential impact on various industries. The course empowers participants to embrace AI and stay at the forefront of the digital revolution.

Empowering Youth with 'AI for Youth' Initiative

The 'AI for Youth' initiative specifically targets students below 18 years from 2000 5T schools of phase 1 and Odisha Adarsh Vidyalayas. This program aims to provide young minds with the opportunity to explore the world of AI and develop their skills in this transformative field. By equipping the youth with AI knowledge, the initiative aims to empower them to become future leaders and contributors in the digital era.

Positioning Odisha as an AI Leader

The successful implementation of these initiatives is expected to position Odisha among the top states in India regarding AI implementation. By embracing AI-driven technologies, the state can unleash its full potential and become a hub of innovation, research, and development. With the support of government programs and collaborations with leading technology companies, Odisha is poised to achieve remarkable progress in the field of AI.

Developmental Plan for Konark Sun Temple Complex

The Konark Sun Temple Complex in Odisha holds immense historical and cultural significance. To enhance its beauty and visitor experience, the Odisha Cabinet, led by Chief Minister Naveen Patnaik, has recently approved a development project under the Konark Heritage Area Development Plan (KHADP). With a budget of over Rs 209 crore, this initiative aims to transform the physical infrastructure surrounding the temple complex and provide an enriched experience for tourists.

The development plan for the Konark Sun Temple Complex primarily concentrates on improving two key aspects: physical infrastructure and visitors' experience. Recognizing the importance of maintaining and enhancing the heritage site, the government aims to revitalize the temple complex by implementing innovative design and restoration techniques. This will not only preserve its architectural grandeur but also create a more accessible and enjoyable environment for visitors.

Completion Timeline and Funding

The development project is set to be completed within a span of 18 calendar months. This timeframe highlights the government's emphasis on timely execution to ensure minimal disruption to visitors. The state government has allocated a budget of more than Rs 209 crore for the execution of the work, reflecting its strong financial commitment to the project.

TOEFL Accepted Under Canada's Student Direct Stream

Canada has recently made a significant decision that will benefit international students seeking to study in the country. The Immigration, Refugees and Citizenship Canada (IRCC) has approved the Test of English as a Foreign Language (TOEFL) as an acceptable score for the Student Direct Stream (SDS). This development opens up new possibilities and opportunities for aspiring students around the world.

The IRCC's decision to include TOEFL as an acceptable score for the SDS is a game-changer. Previously, the only English-language testing option authorized for the SDS route was the International English Language Testing System (IELTS). This recent approval of TOEFL gives international students another viable choice for demonstrating their English language proficiency.

Understanding the Student Direct Stream

The Student Direct Stream is a program designed to expedite the processing of study permits for international students who plan to enroll in designated post-secondary learning institutions in Canada. This program aims to streamline the application process and reduce processing times, providing a smoother pathway for students.

Benefits of TOEFL Approval

The inclusion of TOEFL as an accepted test score for the SDS brings several benefits. Firstly, it expands the options for international students, giving them more flexibility in choosing the English language proficiency test that suits them best. Secondly, it opens doors to a wider pool of applicants who can now demonstrate their skills through the premier test of English-language proficiency.

Positive Reactions and Comments

Rohit Sharma, Senior Vice President of Global Higher Education and Workskills at ETS, expressed enthusiasm for the addition of TOEFL in the SDS route. He highlighted the benefits for both students and institutions, emphasizing the broader access to applicants and the confidence institutions can have in the premier English-language proficiency test.

Changes to TOEFL iBT Test

In addition to the approval for SDS, ETS, the organization conducting TOEFL, announced changes to enhance the test-taking experience. Starting from July 26, 2023, the TOEFL iBT test will be shortened by one hour. Streamlined instructions and navigation, a new writing task focused on academic discussion, a shorter reading section, and the removal of non-scoring questions are among the modifications aimed at optimizing the test.

Latest Periodic Labour Force Survey Figures

India's urban unemployment rate in the first quarter of 2023 reached a historic low of 6.8%, according to data released by the Ministry of Statistics and Programme Implementation. This is a significant decrease from the previous quarter's rate of 7.2%. The figures are based on the Periodic Labour Force Survey (PLFS), which measures unemployment in terms of the Current Weekly Status.

The PLFS was initiated in the year 2018-19 and provides valuable insights into the employment scenario in urban areas. It is a quarterly survey that focuses on various labour force indicators, including the unemployment rate, Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), and the distribution of workers by employment status and industry.

Unemployment Rates by Gender
In the first quarter of 2023, the unemployment rate among men was 6.0%, while for women it was 9.2%. This indicates a slight improvement compared to the previous quarter, where the rates were 6.5% for men and 9.6% for women. The increase in female labour force participation to 22.7% in Q4 FY23, up from 22.3% in the previous quarter, is a positive development.

Worker-Population Ratio and Male Labour Force Participation
The worker-population ratio (WPR) in urban areas for individuals aged 15 and above showed a marginal improvement. In January-March 2023, the WPR reached 45.2%, compared to 44.7% in the previous quarter. Among men, the WPR was 45.2%, while among women it stood at 20.6%. In the third quarter, the respective figures were 68.6% and 20.2%. These numbers highlight the active participation of the workforce in urban areas.

Lipizzan Horses
The small village of Lipica, nestled in the scenic landscapes of Slovenia, has become synonymous with the mesmerizing performances of the Lipizzan horses. These majestic creatures have recently achieved recognition on UNESCO's Intangible Cultural Heritage list, cementing their significance and cultural value.

Lipica, the home of the Lipizzan horses, boasts one of the world's oldest stud farms. This historic farm, established in 1580, has become a symbol of Slovenia's rich equestrian heritage. The village's serene ambiance, surrounded by verdant hills and lush forests, provides an ideal setting for nurturing and showcasing these extraordinary horses.

The Illustrious Legacy of the Habsburg Court
In the 16th century, the Lipizzan horses were meticulously bred by the Habsburg court. Their breeding program successfully blended Spanish, Arabic, and Berber horse bloodlines, creating a breed renowned for its elegance, grace, and strength.

Airs Above the Ground: The Epitome of Equestrian Artistry
Lipizzan horses are world-famous for their captivating "airs above the ground." These intricate and demanding movements, performed in classical dressage, showcase the horse's ability to execute complex jumps with precision, defying gravity as their hooves momentarily leave the ground. It is a spectacle that leaves audiences in awe of the harmony between horse and rider.

Unique Beauty: White Hair, Grey Skin
The Lipizzan horses possess a distinct and captivating appearance. While their coat appears white, their skin is actually grey. This unique combination adds to their allure and distinguishes them from other horse breeds.

A Collective Effort: Eight Countries United

Eight countries jointly applied for recognition of their shared breeding heritage of Lipizzan horses. Austria, Bosnia, Croatia, Hungary, Italy, Romania, Slovakia, and Slovenia joined forces to honor and protect the legacy of these remarkable horses.

Haute Ecole: The Elite Training of Lipizzan Horses

To achieve mastery in classical dressage, Lipizzan horses undergo rigorous training in the esteemed "Haute Ecole" style. This elite training hones their natural abilities, enabling them to perform intricate movements such as cantering, caprioles, and pirouettes.

Elegance in Attire: Tailcoats and Bicorne Hats

During their performances, the riders don traditional attire, adding to the grandeur of the Lipizzan show. Clad in tailcoats and Napoleonic bicorne hats, they embody the elegance and historical significance associated with the Lipizzan horses.

Feasibility Study on Sabang Port

India and Indonesia have recently concluded a joint feasibility study on the development of the Sabang port, situated in the province of Aceh, Indonesia. This collaboration holds significant strategic value for both countries and aims to enhance maritime connectivity and bolster India's military position in the Indian Ocean.

Sabang port is approximately 700 km away from the Andaman and Nicobar Islands. Its geographical position grants India easier access to the Malacca Straits, which serves as a vital maritime trading route. The Straits facilitate a substantial chunk of global trade, including China's energy imports. Thus, the development of the Sabang port holds immense potential for India's economic and military interests.

Accommodating Shipping Vessels and Submarines

The Sabang port is suitable for hosting various types of vessels, including shipping vessels and submarines. This observation sparked speculation about the port's potential military uses, further adding to its strategic importance.

The Feasibility Study and Current Progress

India has successfully completed a comprehensive feasibility study that assesses the prospects for expanding and developing the Sabang port. The study's findings are currently under review by the Indonesian authorities. Although progress on constructing the port has been relatively slow, discussions and initiatives to enhance connectivity between Aceh province and the Andaman and Nicobar Islands have been ongoing for several years.

India-Indonesia Infrastructure Forum (IIIF)

To strengthen infrastructure connectivity and cooperation between the two nations, the India-Indonesia Infrastructure Forum (IIIF) was established in 2018. This forum serves as a platform for fostering collaboration between the private sectors of India and Indonesia. It aims to promote mutual benefit and explore opportunities for infrastructure development, including port projects.

The Potential Benefits and Future Outlook

The joint development of the Sabang port signifies the importance of infrastructure in the India-Indonesia partnership. Besides providing improved connectivity, this initiative could have far-reaching implications for

economic ties and regional stability. It offers India a strategic advantage vis-a-vis China, particularly in the Indian Ocean region. Moreover, the IIIF facilitates ongoing cooperation and sets the stage for further infrastructure development projects in both countries.

Borealis Mud Volcano

Scientists have made a groundbreaking discovery in the Norwegian waters near Bear Island – the Borealis Mud Volcano. Led by Stefan Buenz, the Advancing Knowledge of Methane in the Arctic (AKMA) expedition unearthed this remarkable submarine geological formation.

Submarine mud volcanoes are captivating natural structures that originate from the continuous expulsion of fluids and gases, including methane, from the seabed. These enigmatic formations offer a glimpse into the Earth's dynamic underwater landscapes.

Rising from the Depths: The Borealis Mud Volcano Takes Center Stage

The Borealis Mud Volcano stands tall at a height of eight feet. Situated within a vast crater, this intriguing geological feature formed approximately 18,000 years ago due to a massive methane eruption.

Unveiling the Underwater Marvels: Estimating the Abundance of Mud Volcanoes

While the Borealis Mud Volcano is a remarkable find, it represents only a fraction of the vast number of submarine mud volcanoes that populate the seabed globally. Scientists estimate their presence in the thousands, although locating and mapping them presents a significant challenge.

Unraveling the Past, Illuminating the Future: The Importance of Mud Volcano Research

Studying underwater mud volcanoes offers invaluable opportunities to gain insights into past environments and conditions on Earth. Furthermore, these investigations contribute to our understanding of extraterrestrial landscapes and the potential conditions on other planets.

Hunger Hotspots – FAO-WFP Early Warnings on Acute Food Insecurity

A recent United Nations report has shed light on the alarming situation of hunger hotspots and increasing acute food insecurity in various parts of the world. The report, titled "Hunger Hotspots – FAO-WFP early warnings on acute food insecurity," issued by the Food and Agriculture Organization (FAO) and the World Food Programme (WFP), provides crucial insights into the challenges faced by low- and middle-income nations.

According to the UN report, countries such as Pakistan, Afghanistan, and Myanmar are among the identified hunger hotspots. These regions are facing critical levels of acute food insecurity, necessitating urgent humanitarian action. The report highlights the risk of worsening conditions from June to November 2023, stressing the need for immediate intervention.

Increased Food Insecurity

The FAO and WFP identify 18 areas in 22 countries that may experience heightened food insecurity. Deepening economic shocks, combined with the potential impact of the El Niño climatic phenomenon, contribute to the growing crisis. The report emphasizes the urgent need to address these vulnerabilities and prevent further deterioration.

Countries at Highest Concern Levels

Afghanistan, Nigeria, Somalia, South Sudan, and Yemen are flagged as countries with the highest concern levels for acute food insecurity. These regions already face critical food insecurity, and additional aggravating factors exacerbate the situation. The report further elevates Haiti, the Sahel (Burkina Faso and Mali), and Sudan to the highest concern levels due to their vulnerable conditions.

Hotspots with Very High Concern
Several countries, including Pakistan, Central African Republic, Ethiopia, Kenya, Democratic Republic of the Congo, Syrian Arab Republic, and Myanmar, are identified as hotspots with very high concern for food insecurity. These areas have large populations facing critical acute food insecurity, compounded by worsening drivers.

New Additions and Spillover Effects
The report has included Lebanon, El Salvador, and Nicaragua to the list of hunger hotspot countries since September 2022. Additionally, the crisis in Sudan is causing significant spillover effects, impacting neighboring countries. Massive population displacement and hunger are observed among people forced to flee and those hosting them.

SEBI's Intermediary Advisory Committee
To ensure transparency and efficiency in the operations of market intermediaries, Sebi has established the Intermediary Advisory Committee.

The Purpose of Sebi's Intermediary Advisory Committee
Sebi's Intermediary Advisory Committee serves as an essential forum for suggesting changes to the legal framework and promoting transparency in the systems and procedures of market intermediaries. By providing valuable insights and recommendations, the committee aims to improve market safety, efficiency, and transparency.

Leadership and Membership
The current chairman of the Intermediary Advisory Committee is S Ravindran Jain, a former executive director at Sebi. With 21 members, the committee brings together representatives from various industries crucial to the functioning of the capital markets. These industries include the brokerage industry, financial institutions, legal fields, and Sebi's own members.

Notable Members
Among the esteemed members of the committee are Nithin Kamath, the founder and CEO of Zerodha Broking, a prominent name in the brokerage industry. Lalit Keshre, CEO of Groww, a popular investment platform, also lends expertise to the committee. Their inclusion reflects the importance of industry leaders in shaping policies that impact market intermediaries.

Additionally, the committee benefits from the insights of Ashish Chauhan, the managing director and CEO of the National Stock Exchange (NSE), and Sundararaman Ramamurthy, MD and CEO of BSE. Their contributions bring valuable perspectives from major stock exchanges in India.

Representing the Commodity Participants Association of India (CPAI), Narendra Wadhwa, President, and Vijay Mehta, President of the Association of National Exchanges Members of India (ANMI), bring specialized

knowledge in their respective fields. Their presence ensures a comprehensive understanding of market dynamics and the needs of market participants.

Sebi's Intermediary Advisory Committee plays a crucial role in advising the regulator on measures to simplify and enhance transparency in systems and procedures related to market intermediaries. It also emphasizes the adoption of technology and cybersecurity by intermediaries to ensure compliance and safeguard market integrity.

What is Israel-1?

Nvidia, the renowned US gaming and computer graphics giant, is making waves in the world of AI with its groundbreaking project, Israel-1.

Israel-1: The Cutting-Edge Generative AI Cloud Supercomputer

Nvidia's Israel-1 is poised to become one of the most powerful AI supercomputers globally. This state-of-the-art machine will leverage Nvidia's Spectrum-X networking platform, a purpose-built high-performance ethernet architecture tailored specifically for generative AI workloads. The deployment of Israel-1 represents a major milestone in the field of artificial intelligence.

Nvidia's Spectrum-X networking platform is a game-changer for data centers. Its primary objective is to facilitate the smooth transition to AI and accelerated computing. With generative AI applications and workloads like OpenAI's ChatGPT on the rise, data centers face new challenges that demand ultra-fast computing performance and massive memory. Spectrum-X eliminates barriers by providing an advanced class of Ethernet networking capable of handling the demands of next-generation AI workloads.

Israel-1 is set to achieve a remarkable performance of eight exaflops, enabling it to execute an astounding one quintillion calculations per second. Its immense computational power extends beyond AI applications, with an expected peak performance of over 130 petaflops for traditional scientific computing workloads. To accomplish these feats, Israel-1 will be equipped with cutting-edge data processing units known as BlueField-3, developed in Israel.

Nvidia emphasizes that the delivery of end-to-end AI capabilities is pivotal to unlocking the full potential of AI. By reducing run-times of massive transformer-based generative AI models, Israel-1 empowers network engineers, AI data scientists, and cloud service providers to obtain accurate results and make informed decisions faster. This seamless integration of AI technologies enhances operational efficiency and paves the way for transformative advancements across industries.

Nvidia's acquisition of Mellanox Technologies Ltd. in 2020 demonstrates its commitment to expanding its presence in Israel. This strategic move brought high-speed servers and storage switching solutions into Nvidia's portfolio, further solidifying its position in the supercomputing realm. With a robust research and development presence in Israel, Nvidia's activities in the country continue to thrive.