

NEWSPAPER HIGHLIGHT

The first batch of next generation Armoured Engineer Reconnaissance Vehicles (AERV), indigenously designed and developed by DRDO, and manufactured by the Pune unit of Bharat Electronics Limited, was formally inducted into the Indian Army by Chief of Army Staff Gen. Manoj Mukund Naravane. It is a versatile BMPiK amphibious Infantry Combat Vehicle (ICV) fitted with instruments for water reconnaissance, land reconnaissance, navigation and data backup.

As Parliament adjourned sine die, the presiding officers of the Lok Sabha and the Rajya Sabha expressed concern over the continuous disruption. In his valedictory remarks in the House at the end of the session Chairman of the Rajya Sabha M. Venkaiah Naidu said, Rajya Sabha utilised only 47.9% of its allotted time during the 18 sittings.

Projects under public private partnerships (PPP) at major ports will be able to now determine tariffs in accordance with market dynamics, according to new tariff guidelines unveiled by the Union Minister for Ports, Shipping and Waterways Sarbananda Sonowal. The move was necessitated after the new Major Port Authority Act, 2021 came into effect from November 3. "Currently, major ports' PPP concessionaires handle around 50% of the total traffic handled by all the major ports in India. The biggest benefit of transition to market-linked tariff is that a level playing field will be provided to the PPP concessionaires at major ports to compete with private ports.

The amendments proposed to the anti-child marriage law defines a child as someone under the age of 21 and contradicts laws where the legal age of competence is recognised as 18. This, experts say, may criminalise young people. The Prohibition of Child Marriage (Amendment) Bill, 2021, which seeks to raise the age of marriage for women to 21, amends the definition of child to mean "a male or female who has not completed twenty one years of age". It overrides personal laws of Hindus, Christians, Muslims and Parsis, as well as the Special Marriage Act, 1954. The Lok Sabha has referred this Bill to a Standing Committee after MPs demanded a deeper scrutiny and wider

PROJECT 15B

1. Warship Mormugao (D 67) sails for maiden sea trials. Mormugao is Indian Navy's second indigenous stealth destroyer of the Project 15B being built at Mazagon Dock Shipbuilders Ltd (MDSL). Project 15B class of guided missile destroyers (Visakhapatnam, Imphal and Surat) are an improved variant of the Kolkata-class destroyers.

2. **Project 15B ships retain the hull design of the Kolkata-class destroyers but incorporate advanced stealth features & a high degree of automation.** Designed indigenously by the Directorate of Naval Design, the vessels will offer improved survivability, sea keeping and high manoeuvrability.

3. These warships are propelled by 4 gas turbines to achieve excess speed. The first ship of Project 15B is a guided missile destroyer christened 'Visakhapatnam (D 66)'. It was launched in 2015.

CUT ON BASIC CUSTOMS DUTY

1. Concerned over high prices of cooking oils, the Central Board of Indirect Taxes and Customs (CBIC) has cut the basic customs duty (BCD) on refined palm oil from 17.5% to 12.5% till March 2022. Basic Customs Duty is a type of duty or tax imposed under the Customs Act, 1962. It varies for different items and the Central government has the power to reduce or exempt any goods from the charges.

2. This cut is done by the government to boost domestic supplies and bring down rates in the domestic retail markets. With the reduction in the BCD, the effective levy (including social welfare cess) on both refined palm oil and refined palmolein will come down from 19.25% to 13.75%. All these measures have been put in place at a time when inflation is ruling high. 3. Other Types of Customs **Duty Countervailing duty (CVD)** is also known as the additional duty. It is equal to the excise duty imposed on a product manufactured or produced in India. It is implemented under Section 3 (1) of the Indian Custom Tariff Act. Special CVD - In order to equalise imports with local taxes which are imposed from time to time, a special CVD is imposed on imported goods.

4. **Anti-Dumping duty** - Often companies in developed countries sell their goods at a lower rate in developing countries. This may be done to dispose off their excess goods or to damage the domestic economy. Hence, every government imposes an anti-dumping duty to ensure that the product being sold is not below the normal rate.

5. **Protective duties** - Whenever the Central government feels the need to protect the interests of Indian industry, it imposes protective customs duty at recommended rates as per Section 6 of Customs Tariff Act, 1975.

GENOME SEQUENCING

1. Scientists detect new variants of the virus that causes COVID-19 using the process called DNA sequencing. Genomic Sequencing or DNA Sequencing determines the order of the four chemical building blocks ('bases') or nucleotides that make up the DNA molecule - Adenine, thymine, cytosine and guanine. These nucleotides pair up together collectively to make up a genome that contains all the genetic information an organism needs to survive. When an organism replicates, it makes a copy of its entire genome to pass on to its offspring.

2. Sometimes errors in the copying process can lead to mutations in which one or more building blocks are swapped, deleted or inserted. This may alter genes, and can affect the physical characteristics of that organism.

3. Types of Sequencing There are three generations of sequencing technologies - **First-generation sequencing (used in the 1970s and 1980s) - Maxam-Gilbert method, and Sanger method (or dideoxy method), Next-generation sequencing or NGS (used since the late 1990s) Second-generation sequencing and Third-generation sequencing.** Comparatively, the Next-generation sequencing technologies are able to process much higher volumes of DNA at the same time, significantly reducing the amount of time it takes to sequence a genome.

consultations.

The winter session of Parliament ended on Wednesday the same way it started on November 29 — on an acrimonious note. Both Houses were adjourned sine die a day ahead of schedule. The session began with the suspension of 12 Opposition members in the Rajya Sabha and concluded with the passage of the controversial Election Laws (Amendment) Bill 2021, which seeks to link the electoral rolls with the Aadhaar database, despite strident protests by the Opposition.

The Income Tax Department on Wednesday carried out searches in different parts of the country against several entities linked to the manufacturing of Chinese mobile phones on suspicion of tax evasion. An official said the searches on some of the premises began on Tuesday. During the operation carried out at more than a dozen places, including in Delhi, Greater Noida, Kolkata, Mumbai and Bengaluru, certain locations related to companies such as Oppo and Xiaomi were covered.

The United Nations Security Council (UNSC) on Wednesday unanimously passed a resolution permitting a carve out in sanctions against the Taliban to facilitate the delivery of humanitarian aid to Afghanistan. The resolution, put forward by the U.S., passed after the Security Council members, including veto wielding China and Russia, had objections to a draft version that was circulated earlier this week.

Bihar Chief Minister Nitish Kumar on Wednesday embarked upon his Samaj Sudhar Abhiyan (social reform campaign) from Motihari in East Champaran district to raise awareness about social ills such as child marriage and the dowry system.

India gave one million doses of COVID19 vaccines to Myanmar as the country grapples with a breakdown in law and order following the military takeover in February. The doses were handed over by Foreign Secretary Harsh Vardhan Shringla who is on a visit to the country, the first by any Indian high official since the coup. "Foreign Secretary Harsh Vardhan Shringla handed over 1 million doses of 'Made in India' vaccines to the representatives of the Myanmar Red Cross Society to support the people of Myanmar, including those along the India-Myanmar border, in their fight against COVID19.

Prime Minister Narendra Modi on Wednesday said as India celebrates 75 years of Independence next year,

4. Sanger sequencing involves cutting up DNA into short fragments and adding radioactive or fluorescent tags to identify each nucleotide. The fragments are then put through an electric sieve that sorts them by size. Compared with newer methods, Sanger sequencing is slow and can process only relatively short stretches of DNA. But it provides highly accurate data, and some researchers are still using this method to sequence SARS-CoV-2 samples. 5. Second-generation sequencing marks each nucleotide with a specific colour. These technologies are able to read DNA directly. After DNA is cut up into fragments, short stretches of genetic material called adapters are added to give each nucleotide a different colour. Finally, these DNA fragments are fed into a computer and reassembled into the entire genomic sequence.

6. Third-generation sequencing technologies like the Nanopore MinIon detect changes in an electrical current to identify nucleotides. As each pair of nucleotides disrupts the electrical current in a particular way, the sequencer can read these changes and upload them directly to a computer. This allows clinicians to sequence samples at point-of-care clinical and treatment facilities. However, Nanopore sequences smaller volumes of DNA compared with other NGS platforms.

CHILLAI KALAN

1. With the winter solstice, the 'chillai kalan' has started in the Kashmir Valley. 'Chillai Kalan' is a Persian term which means 'major cold'. Chillai Kalan is the 40-day harshest spell of winter of the Kaashmir Valley. It is the coldest part of winter, starting from December 21 to January 29 every year.

2. The cold wave is triggered by the sub-zero temperature. The ongoing cold wave is said to reach its peak with Kashmir's mountains covered in snow for weeks. It is said the snow during the period lasts longer and replenishes the streams, rivers and lakes of Kashmir.

3. **The bone-chilling cold condition is followed by a 20-day-long 'Chillai Khurd' and 10-day-long 'Chillai Bacha'. Impacts - The number of heart attack and stroke patients at Kashmir hospitals doubles in winter due to the chilly weather.** Not only the elderly, but young and healthy people come to hospitals with heart problems, and some of them are even brought dead.

SICKLE CELL ANAEMIA

1. Sickle cell anaemia is an autosomal recessive disease or Mendelian disorder (Genetic Disorder). It is caused by a mutation in the hemoglobin- β gene found on chromosome 11. This mutation results in defective haemoglobin (Hb). After giving up oxygen, these defective Hb molecules cluster together resulting in formation of rod like structures. The red blood cells become stiff and assume sickle shape.

2. The defect is caused by the substitution of Glutamic acid by Valine at the sixth position of the beta globin chain of the haemoglobin molecule. Genotypes - The disease is controlled by a single pair of allele, HbA and HbS. Out of the three possible genotypes, only homozygous individuals for HbS (HbSHbS) show the diseased phenotype.

3. Heterozygous (HbAHbS) individuals appear apparently unaffected but they are carrier of the disease as there is 50% probability of transmission of the mutant gene to the progeny, thus exhibiting sickle-cell trait.

4. **Commonality - The disease is mostly common among people whose ancestors originated from sub-Saharan Africa, South America, Cuba, Central America, Saudi Arabia, India, and Mediterranean countries.** In India, it is common among people of the Deccan plateau of central India with a smaller focus in the north of Kerala and Tamil Nadu.

JAMES WEBB SPACE TELESCOPE

1. NASA has announced the launch of the James Webb Space Telescope (JWST) on December 24. Webb, the world's premier space science observatory, will succeed the Hubble Space Telescope, NASA's flagship telescope that has been in service for more than three decades now.

2. About JSWT: JWST is a joint venture between the US (Nasa), European (Esa) and Canadian space agencies (CSA). It is an orbiting infrared observatory that will complement and extend the discoveries of the Hubble Space Telescope, with longer wavelength coverage and greatly improved sensitivity. Webb was formerly known as the "Next Generation Space Telescope" (NGST) and it was renamed in 2002 after a former NASA administrator,

there was a need to inculcate a sense of duty in the youth that will hold positions of leaders in 2047. Mr. Modi was addressing the second meeting of the national committee on Azadi Ka Amrit Mahotsav, the Central government's yearlong celebration of 75 years of Independence.

China's President Xi Jinping on Wednesday gave a strong endorsement to both Hong Kong's current Chief Executive, Carrie Lam, and its recently held "patriots only" elections, which saw a record low turnout and no participation by most of the pro democracy Opposition candidates.

James Webb. It will be a large infrared telescope with an approximately 6.5 meter primary mirror.

3.Objectives and functions of the telescope: It will look deeper into the cosmos – and thus further back in time – than is possible with Hubble. It will do this with a much bigger mirror (6.5m in diameter versus 2.4m) and instruments that are tuned to the infrared. Scientists hope this set-up can detect the light from the very first population of stars in the Universe to switch on more than 13.5 billion years ago.