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Elon Musk

कोंडाजी

फर्जद

सिद्धू जाधव



जंजि-याच्या गुहेत शिरून दारुगोळा उडविण्याचा धाडसी प्रयत्न करणारे नररत्न!

स्वराज्याची शान असणारा बलाढ्य अंगापिंडाचा पन्हाळा किल्ला गनिमी काव्याने शक्ती आणि युक्तीने घारी सारखी झडप घालून ताब्यात घेत तो पुन्हा स्वराज्याला समर्पित करणारी पराक्रमी शिलेदार म्हणजे कोंडाजी फर्जद, कोंडाजी कोकणातूनच महाड, पोलादपूर, चिपळण, खेड या मागनि अगंदी गुपचूप बनिबोभाट रोजापुस पोहोचले. तेथूनच चोरट्या पावलांनी जाऊन त्यांनी पन्हाळ्याचा वेध घेतला. जिथे पहारे कमी आहेत अशी जागा हेरून कोंडाजी दि. 6 मार्च 1673 ला सोबत अवधे 60 वीर मावळे घेऊन गडावर चढले. फाल्गुन वभ त्रयोदशीच्या मध्यरात्री किर.. अंधारात ठरल्याप्रमाणे हरहर महादेव चा बुक्का उधळला. तशी गडाला जाग आली. गनिमाला चक्रविण्यासाठी गडावर पोहचल्यावर मावळ्यांनी शंख फुकले. रणवान वाजवळी, घोषणा देत, आरडाओरड करते आदिलशाहीच्या सैन्यावर चाल केली. या अतर्क्य प्रकारा मुळे एकच गोंधळ उडाला व मराठे मोठ्या संख्येने आले आहेत असे समजून शत्रु पक्षाचे अवसान गळाले. आदिलशाहीचा एक मातब्बरे गड अवध्या साठ मावळ्यांनी ताब्यात घेत पन्हाळा पुन्हा स्वराज्यात दाखल केला.

॥ जगदंब ॥

50th Vijay Diwas on 16 December 2021

Harshal Rasane
(FE Div- C)

In India, Vijay Diwas (also called Victory Day) is celebrated every year on December 16. The country is celebrating the 50th Vijay Diwas in 2021. Vijay Diwas is observed to commemorate the service, valour, and sacrifices of the gallant men of the Indian Armed Forces' victory over Pakistan in the 1971 war. On this day, we pay homage to all the soldiers who had defended the nation in the war.

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About Vijay Diwas:

The Indo-Pakistan war of 1971 which began on December 3 lasted for 13 days and officially ended on December 16, after which Pakistan surrendered to India. It was on this day in 1971, the chief of the Pakistani forces, General AA Khan Niazi, along with 93 thousand troops, had surrendered unconditionally to the allied forces consisting of the Indian Army and Mukti Bahini. The end of the war also resulted in the subsequent secession of East Pakistan into Bangladesh.



ECLIPSE

ASTRONOMY

Prof. Rushikesh
Londhe



Eclipse in astronomy complete or partial obscuring of a celestial body by another. An eclipse occurs when three celestial objects become aligned.

From the perspective of a person on Earth, the Sun is eclipsed when the Moon comes between it and Earth, and the Moon is eclipsed when it moves into the shadow of Earth cast by the Sun. Eclipses of natural satellites (moons) or of spacecraft orbiting or flying past a planet occur as the bodies move into the planet's shadow. The two component stars of an eclipsing binary star move around each other in such a way that their orbital plane passes through or very near Earth, and each star periodically eclipses the other as seen from Earth.

* Phenomena observed during eclipses Lunar eclipse phenomena

The Moon, when full, may enter the shadow of Earth. The motion of the Moon around Earth is from west to east (see the figure of a lunar eclipse, in which the view of Earth is from above its North Pole). For an observer facing south, the shadowing of the Moon begins at its left edge (if the Moon were north of the observer, as, for example, in parts of the Southern Hemisphere, the opposite would be true). If the eclipse is a total one and circumstances are favourable, the Moon will pass through the umbra, the darkest part of the shadow, in about two hours. During this time the Moon is usually not completely dark. A part of the sunlight, especially the redder light, penetrates Earth's atmosphere, is refracted into the shadow cone, and reaches the Moon. Meteorological conditions on Earth strongly affect the amount and colour of light that can penetrate the atmosphere. Generally, the totally eclipsed Moon is clearly visible and has a reddish brown, coppery colour, but the brightness varies strongly from one eclipse to another.

December 5 World Soil Day

Pankaj Yadav
(FE Div - C)

Soil salinization and sodification are among the most important problems at a global level for agricultural production, food security and sustainability in arid and semi-arid regions. PHOTO:International Rice Research Institute (IRRI).



Soil salinization: a threat to our global pantry

Have you ever seen white crusts on soil? Yes, it is what you think. Soils can be salty. Salts are present naturally in soils and water, and they move freely through the soil. Naturally saline soils may support rich ecosystems, but natural processes such as droughts and human activities, especially improper irrigation, can increase how many salts are in soils, a process that is called salinization. Soil salinization breaks down our soils and reduces their ability to help our food grow.

Soil salinization and sodification are major soil degradation processes threatening ecosystem and are recognized as being among the most important problems at a global level for agricultural production, food security and sustainability in arid and semi-arid regions.

Salt-affected soils have serious impacts on soil functions, such as in the decrease in agricultural productivity, water quality, soil biodiversity, and soil erosion. Salt-affected soils have a decreased ability to act as a buffer and filter against pollutants. Salt-affected soils reduce both the ability of crops to take up water and the availability of micronutrients. They also concentrate ions that are toxic to plants and may degrade the soil structure.

World Soil Day 2021 (#WorldSoilDay) and its campaign "Halt soil salinization, boost soil productivity" aims to raise awareness of the importance of maintaining healthy ecosystems and human well-being by addressing the growing challenges in soil management, fighting soil salinization, increasing soil awareness and encouraging societies to improve soil health.

Material Science

Om VISHNU PATIL,
F.E. DIV.(C)

MAJOR BREAKTHROUGH IN ENGINEERED CRYSTALS COULD HELP COMPUTE

By UNIVERSITY OF CALIFORNIA - BERKELEY APRIL 10, 2022....(Researcher: Sayeef Salahuddin)

"In the last 10 years, the energy used for computing has increased exponentially, already accounting for single digit percentages of the world's energy production, which grows only linearly, without an end in sight," Salahuddin said. "Usually, when we are using our computers and our cell phones, we don't think about how much energy we are using. But it is a huge amount, and it is only going to go up. Our goal is to reduce the energy needs of this basic building block of computing, because that brings down the energy needs for the entire system."

University of California, Berkeley, researchers have created engineered crystal structures that display an unusual physical phenomenon known as negative capacitance. Incorporating this material into advanced silicon transistors could make computers more energy efficient. Credit: Ella Maru Studio

A new material created by University of California, Berkeley, researchers could reduce the energy required to control advanced silicon transistors.

Computers may be growing smaller and more powerful, but they require a great deal of energy to operate. The total amount of energy the U.S. dedicates to computing has risen dramatically over the last decade and is quickly approaching that of other major sectors, like transportation.

In a study published online in the journal Nature on April 6, 2022, University of California, Berkeley, engineers describe a major breakthrough in the design of a component of transistors — the tiny electrical switches that form the building blocks of computers that could significantly reduce their energy consumption without sacrificing speed, size or performance. The component, called the gate oxide, plays a key role in switching the transistor on and off.

This boost in efficiency is made possible by an effect called negative capacitance, which helps reduce the amount of voltage that is needed to store charge in a material. Salahuddin theoretically predicted the existence of negative capacitance in 2008 and first demonstrated the effect in a ferroelectric crystal in 2011.

The new study shows how negative capacitance can be achieved in an engineered crystal composed of a layered stack of hafnium oxide and zirconium oxide, which is readily compatible with advanced silicon transistors. By incorporating the material into model transistors, the study demonstrates how the negative capacitance effect can significantly lower the amount of voltage required to control transistors, and as a result, the amount of energy consumed by a computer

December 1

World AIDS Day



Chaitanya Rasane
(FE Div-C)

World AIDS Day is observed on 1 December every year to raise awareness and knowledge about HIV and a call to move toward ending the HIV epidemic. It was first celebrated in 1988. The theme of 2019 is "Ending the HIV/AIDS Epidemic: Community by Community". And according to UNAIDS, the theme of this year is "Communities make the difference".

* World AIDS Day 2021: Know about AIDS, its Origin & Evolution, Symptoms, Treatment, and More

World AIDS Day 2021: It is observed every year on 1 December to spread awareness, educate and develop an understanding of HIV as a global public health problem. Let us have a look at the symptoms and treatment of AIDS. And also the first time when and where did it emerge?

World AIDS Day 2021: This year, the theme of World AIDS Day is "End inequalities. End AIDS". The day highlights the urgent need to end the inequalities that drive AIDS and other pandemics across the world. The theme focuses on reaching people left behind. WHO and its partners are emphasising the growing inequalities to access to essential HIV services. Read below about AIDS, its origin and evolution, symptoms, treatment, etc.

* What is AIDS?

AIDS full form is Acquired Immunodeficiency Syndrome which is a chronic and life-threatening condition caused by HIV (Human Immunodeficiency Virus). It damages the immune system of the human being and the ability of the body to fight against disease is hampered.

* How did HIV treatment progress?

In 2001, generic drug manufacturers began selling discounted copies of patented HIV drugs to developing countries, many leading drug manufacturers to reduce the price of HIV drugs. The following year, the United Nations Program on HIV / AIDS (United Nations) stated that AIDS was by far the leading cause of death in sub-Saharan Africa.

The Food and Drug Administration (FDA) approved pre-exposure prophylaxis, or PrEP, in 2012 for HIV-negative people. According to the Centers for Disease Control and Prevention (CDC), if taken daily, the risk of PrEP HIV can be reduced by more than 90 percent and by the use of intravenous drugs up to 70 percent.

GMRT

Sejal Jadhav
(FE Div - B)



★ Alternative names:

GMRT

★ Location(s):

Narayangan, District Pune, Maharashtra, India

★ Organization:

National Centre for Radio Astrophysics

★ Wavelength:

50, 1,500 MHz (6.00, 0.20 m)

Number of telescopes: 30

★ Diameter:

45 m (147 ft 8 in)

★ Collecting area:

47,713 m² (513,580 sq. ft)



The Giant Metre wave Radio Telescope (GMRT), located near Pune, Jonner, near Narayangan at hodad in India, is an array of thirty fully steerable parabolic radio telescopes of 45 metre diameter, observing at metre wavelengths. It is operated by the National Centre for Radio Astrophysics (NCRA), a part of the Tata Institute of Fundamental Research Mumbai. It was conceived and built under the direction of Late Prof. Govind Swarup during 1984 to 1996. It is an interferometric array with baselines of up to 25 kilometres (16 mi). It was recently). upgraded with new receivers, after which it is also known as the Upgraded Giant Metre wave Radio Telescope (uGMRT).

★ Science and observations

- 1) One of the aims for the telescope during its development was to search for the highly redshifted 21-cm line radiation from primordial neutral hydrogen clouds in order to determine the epoch of galaxy formation in the universe.
- 2) Astronomers from all over the world regularly use this telescope to observe many different astronomical objects such as HII regions, galaxies, pulsars, supernovae, and Sun and solar winds.
- 3) In August 2018, the most distant galaxy ever known, located at a distance of 12 billion light years, was discovered by GMRT.
- 4) In February 2020, it helped in the observation of the biggest explosion in the history of the universe, the Ophiuchus Supercluster explosion.

Quote of the Month

"It is possible for ordinary people to choose to be extraordinary."

- Elon Musk



★★★