

## UPSC CURRENT AFFAIRS NOTES 20-11-2023

### RANI LAKSHMIBAI

The Prime Minister, Shri Narendra Modi paid heartfelt tributes to the symbol of the bravery of Indian women power, Rani Lakshmbai on her birth anniversary.



#### Details

Rani Lakshmbai, also known as the Rani of Jhansi, was a prominent figure in the Indian Rebellion of 1857 against British colonial rule.

Her valiant efforts and unwavering courage have made her an enduring symbol of resistance and patriotism in India's struggle for independence.

#### Early Life and Background

##### Birth and Childhood:

Born as Manikarnika Tambe on November 19, 1828, in Varanasi, she later became known as Lakshmbai.

Daughter of Moropant Tambe and was raised in the culture of courage and valor.



## **Marriage to Maharaja of Jhansi:**

Married Raja Gangadhar Rao Newalkar, the Maharaja of Jhansi, at a young age.

After their marriage, she was named Lakshmibai, and her son was named Damodar Rao.

## **Rani Lakshmibai's Role in the Rebellion of 1857**

Resistance Against Annexation:

Following her husband's death in 1853, the British East India Company attempted to annex Jhansi under the Doctrine of Lapse.

Rani Lakshmibai fiercely opposed this annexation, refusing to cede control of Jhansi to the British.

Leadership in the Rebellion:

Amid the Indian Rebellion of 1857, Rani Lakshmibai took charge, leading her troops in the defense of Jhansi against the British.

Showcased remarkable bravery, military acumen, and determination in the face of adversity.

Battle of Jhansi:

Engaged in the Battle of Jhansi against British forces, exhibiting strategic prowess and a strong sense of leadership.

Although Jhansi ultimately fell to the British, her resistance became legendary.

## **Legacy and Contribution to India's Freedom Movement**

Symbol of Courage and Patriotism:

Rani Lakshmibai's bravery and sacrifice made her an iconic figure in India's struggle for independence.

Her valor in fighting against colonial rule continues to inspire generations.

Iconic Battle Cry:

Her battle cry "Krantikari Rani" and "Jai Bhavani, Jai Shivaji" echoed the spirit of resistance against oppression.

Honors and Tributes:

Honored through numerous memorials, statues, and tributes across India, including the Rani Jhansi Marine National Park and Rani Jhansi Road in Delhi.

## Death and Legacy

Death in Battle:

Rani Lakshmibai fought fiercely in the Battle of Gwalior in 1858 and died on June 18, 1858, while leading her troops.

Enduring Inspiration:

Her legacy of courage, determination, and sacrifice remains etched in Indian history and serves as an enduring inspiration for freedom fighters and nationalists.

## COSMIC VINE

The discovery of the "Cosmic Vine," an enormous cosmic structure containing around 20 galaxies, is a significant milestone in astronomy and astrophysics.



### Details

The "Cosmic Vine" spans approximately 13 million light-years and contains at least 20 massive galaxies.

Observed at a redshift of 3.44, indicating its existence when the universe was around 2.5 billion years old.

### **Unique Characteristics**

Exceptionally lengthy and vast, surpassing the size of other known compact galaxy groups at similar redshifts.

Contains two of the most massive galaxies ever discovered at such high redshifts (Galaxy A and Galaxy E), both in a quiescent state, implying reduced star formation rates.

### **Significance**

Offers new perspectives on the formation and evolution of massive galaxies.

Suggests that massive quiescent galaxies can form within expanding large-scale structures, contrary to some earlier models.

Implies that the quenching process halting star formation in galaxies can occur in various environments, not solely within galaxy cluster cores.

### **Repercussions for Galaxy Formation**

Indicates that significant energy releases from supermassive black holes might have subdued Galaxy A and Galaxy E before being integrated into the Cosmic Vine.

Implies the quenching process can transpire in diverse environments, expanding our understanding beyond galaxy cluster cores.

### **Future Research and Tools**

Further examination of quiescent cluster galaxies at high redshifts is deemed essential for understanding the formation of such massive structures.

The Euclid Space Telescope, recently launched and designed to explore the universe's large-scale structures, holds promise in advancing this research.

### **What are Galaxies?**

Definition: Galaxies are immense systems in space containing stars, stellar remnants, interstellar gas, dust, and dark matter, all held together by gravity.





### **Classification:**

**Spiral Galaxies:** Characterized by spiral arms emanating from a central bulge (e.g., Milky Way).

**Elliptical Galaxies:** Generally, elliptical in shape, with stars orbiting randomly (e.g., M87).

**Irregular Galaxies:** Lack a defined shape (e.g., Large and Small Magellanic Clouds).

**Lenticular Galaxies:** Possess features of both spiral and elliptical galaxies.

**Galaxy Formation and Evolution:**

### **Formation Theories:**

**Hierarchical Model:** Proposes that galaxies form from smaller structures merging over time.

**Cold Dark Matter (CDM) Model:** Suggests that dark matter plays a crucial role in galaxy formation.

**Evolution:**

**Star Formation:** Galaxies exhibit varying rates of star birth, influenced by gas and dust.

**Galactic Mergers:** Larger galaxies can form through collisions and mergers of smaller ones.

**Quenching Processes:** Mechanisms that stop or slow down star formation in galaxies.

### **Active Galactic Nuclei (AGN):**

**Quasars and Blazars:** Energetic and luminous centers of galaxies fueled by supermassive black holes.

**Galaxy Components:**

### **Stellar Content:**

**Population I and II Stars:** Different generations of stars within galaxies, indicating age and metallicity differences.

**Globular Clusters:** Dense spherical collections of stars orbiting galaxies.



Interstellar Medium (ISM):

Nebulae: Regions of gas and dust where new stars form.

Molecular Clouds: Dense regions within nebulae that foster star birth.

### **Dark Matter:**

Invisible Matter: Detected through gravitational effects, comprising a significant portion of a galaxy's mass.

Galactic Structures:

Spiral Arms: Regions of concentrated stars and gas winding around a galaxy's center.

Central Bulge: Dense area at the core of a galaxy, often housing a supermassive black hole.

### **Observational Tools and Studies:**

Telescopic Observations:

Ground-based and space telescopes (Hubble Space Telescope, James Webb Space Telescope) capture images and spectra aiding galaxy studies.

Redshift and Distance Measurements:

Use of redshift in spectral lines to determine a galaxy's velocity and distance from Earth.

### **Surveys and Catalogs:**

Efforts like the Sloan Digital Sky Survey (SDSS) create comprehensive catalogs of galaxies.

Cosmological Studies:

Galaxy surveys assist in understanding large-scale structures and the evolution of the universe.

## Sophisticated Analytical & Technical Help Institutes (SATHI)

The Centre's move to cancel a call for proposals under the Department of Science and Technology (DST)'s SATHI programme has sparked fears among higher education institutions

### About Sophisticated Analytical & Technical Help Institutes (SATHI):

It is an initiative by the Department of Science and Technology to boost access to research and testing facilities and address problems of accessibility, maintenance, redundancy, and duplication of expensive equipment in Institutions.

It aims to set up a shared, professionally managed Science and Technology (S&T) infrastructure facility which can be readily accessible to academia, start-ups, manufacturing units, industries, and R&D labs.



Such S&T infrastructure will be known as the Sophisticated Analytical & Technical Help Institute (SATHI).

These Centres will be equipped with major analytical instruments and advanced manufacturing facilities which are usually not available at Institutes / Organisations.

It would encourage and ensure the establishment of a National Network of Laboratories and testing facilities tightly linked to global standards.

SATHI facilities will be used for 80% of their available time by external users, e. outside of the host institutes and the remaining 20% of their available time by internal users of the host institute.



The usage of the facility will be guided by the basic principle of maximum and effective utilization and accessibility for all.

The facilities provided by the SATHI may be utilized by any user or organization upon payment of nominal charges.

### **Funding:**

Proposals from well-established, internationally competitive S&T host institutes / R&D Centres / Organizations irrespective of their status as Government / NonGovernment, from State/ Central Universities, are invited through networking and a cluster approach.

The upper limit of funding support from DST would be Rs 60.0 crore for 4 years for acquiring only state-of-the-art national facilities.

A not-for-profit Section-8 company as well as a Governing Body (GB) formation are compulsory in consortium mode with the support of the granting agency.

Duration: The duration of support for the SATHI Project will be for a period not exceeding 4 years.

### **Indira Gandhi Peace Prize**

Recently, the Indira Gandhi Prize for Peace, Disarmament, and Development 2022 was jointly awarded to the Indian Medical Association and the Trained Nurses Association of India as representatives of the COVID-19 warriors in the country.

#### **About Indira Gandhi Peace Prize:**

The Indira Gandhi Prize for Peace, Disarmament, and Development was instituted in the memory of the former prime minister by a trust in her name in 1986.

It consists of a monetary award of 25 lakh rupees along with a citation.

The award is given to individuals or organisations that work towards ensuring international peace and development, ensuring that scientific discoveries are



used to further the scope of freedom and better humanity, and creating a new international economic order.

### **Past recipients of this award include:**

Mikhail Gorbachev, former leader of the Soviet Union (1987);

UNICEF (1989)

Jimmy Carter, former president of the US (1997)

UN and its secretary-general Kofi Annan (2003)

Angela Merkel, chancellor of Germany (2013)

Indian Space Research Organisation (2014)

Former Prime Minister of India, Manmohan Singh (2017)

Sir David Attenborough (2019)

Pratham NGO (2021)

### **Freemartins**

In agricultural settings, freemartins can't reproduce; farmers often identify them through physical and/or behavioural traits.





## About Freemartins:

In animal husbandry, cattle that are born exhibiting characteristics of both sexes are called freemartins.

Freemartins are sterile female cattle that result from the twinning of a male and a female within the same uterus.

This phenomenon occurs in approximately 90% of such twin pregnancies in cattle.

The key reason is the exchange of blood between the male and female foetuses during gestation.

Genetically, freemartinism is attributed to the sharing of cells carrying the Y chromosome from the male twin with the female twin.

This chromosome triggers the development of male reproductive organs in the male foetus, while the female foetus, affected by the presence of male hormones, experiences incomplete development of its reproductive system.

The end result is that the freemartin has an underdeveloped or non-functional reproductive tract.

Freemartins can't reproduce, so farmers often identify them through physical and/or behavioural traits to cull them from the breeding herd to improve reproductive efficiency.

## Key facts about chromosome

It is a thread-like structure located inside the nucleus of animal and plant cells.

Each chromosome is made of protein and a single molecule of deoxyribonucleic acid (DNA).

## It is passed from parents to offspring.

DNA contains the specific instructions that make each type of living creature unique.

In humans, in addition to the 22 pairs of chromosomes in each, we have a pair of sex chromosomes called X and Y.

All biological males have X and Y chromosomes, and all biological females have two X chromosomes.



Governor's right to withhold assent

Why in the news?

Tamil Nadu's Governor R N Ravi's decision to withhold assent to 10 pending Bills has raised fresh legal questions on the powers of the Governor.

This comes at a time when at least four opposition-ruled states including Tamil Nadu are before the Supreme Court seeking its intervention on defining the contours of the Governor's powers in the lawmaking process.

What's in today's article?

## **Constitution on Governor's role in giving assent to Bills**

What does the Constitution say about the Governor's role in giving assent to Bills?

Although, Article 163 of the Constitution deals with the powers of the Governor generally, Article 200 specifically deals with the issue of granting assent to Bills.

Both the provisions are read together to determine the contours of the power the Governor holds on this issue.

When a Bill passed by the legislature of a state is presented to the Governor, the Governor has four options:

- Grant assent to the Bill;
- Withhold assent to the Bills;
- Return the Bills for reconsideration; or
- Reserve the Bill for the consideration of the President.

### **Article 200 states that:**

When a State Legislative Assembly passes a bill, or in a State with a Legislative Council, when both houses of the legislature pass the bill, the bill is then presented to the Governor.

The Governor has three options: to approve the bill (assent), reject the bill (withhold assent), or hold off on a decision and refer the bill to the President for consideration.



However, the Article has a key provision. It says that the Governor “may, as soon as possible” return Bills other than money Bills, with a message requesting that the House reconsider it in parts or in whole.

However, once the Legislative House reconsiders the Bill and sends it to the Governor once again, the Governor “shall not withhold assent therefrom”.

### **Bone of contention**

The tug-of-war between the government and the Governor in the Opposition-ruled states essentially lies in the wordplay in the provision.

The provision says the Governor must return the Bill “as soon as possible” but does not prescribe a specific timeframe.

Raj Bhavans have exploited this ambiguity to sit on Bills indefinitely without returning them to the state legislature.

### **Can a Governor in practice actually sit on a Bill forever?**

An indefinite timeline in deciding on Bills can in effect amount to paralysing the elected government.

At the same time, giving assent to Bills is one of the few areas in which the Governor can exercise his discretion.

But this discretion cannot be used arbitrarily or based on a personal preference, but only in Constitutional terms with cogent reasons.

Additionally, Article 200 uses the word “shall” which indicates that the framers of the Constitution intended a mandatory tone for the Governor on this aspect.

### **What is the viewpoint of SC on this?**

The SC in its landmark 2016 ruling in the Arunachal Pradesh Assembly case (Nabam Rebia and Bamang Felix vs Deputy Speaker) discussed this aspect briefly.

It said that the Governor cannot withhold assent to a Bill indefinitely but must return it to the Assembly with a message and this could include his recommendation for amendments to the Bill.



## What can the Supreme Court do now?

Tamil Nadu, Kerala, Telangana, and Punjab, have sought the intervention of the Supreme Court on the issue.

Several aspects dealing with the Governor's powers have been litigated extensively, and there is now settled law on these aspects.

This includes the role in recommending President's Rule, inviting the party with a majority to form the government, or during a trust vote.

The SC has now been called upon to decide a new aspect — whether it can fix a timeline for Governors to give assent to Bills, which amounts to deciding whether it can prescribe limits to an office exercising constitutional powers.

In the past, the court has reluctantly fixed timelines for the Speaker's office to decide disqualification cases.

A Governor cannot be made a party before the Supreme Court.

Generally, therefore, the court issues notice to the Secretary of the Governor in such disputes.