Prelim Bits 12-03-2023 & 13-03-2023 | UPSC Daily Current Affairs

Humayun (1530-1540, 1555-1556)

Historian Ebba Koch's book 'The Planetary King: Humayun Padshah, Inventor and Visionary on the Mughal Throne' was launched in New Delhi on Humayun's birth anniversary.

- Nasiruddin Humayun (1530-1540, 1555-1556) is the second Mughal padshah.
- He was the successor of Babur, the founder of the Mughal dynasty and father of Akbar.
- He lost to his rival Sher Shah Suri in Battle of Chausa (1539) and Battle of Kanauj (1540), forcing him to flee to Iran.
- In Iran Humayun received help from the Safavid Shah and regained his throne in Delhi in 1555.
- A year later he died in an accident.
- **Accounts** - His biography is ***Qanun-i Humayuni*** was written by historian ***Khwandamir***, it is also known as ***Humayun Nama of Khwandamir***.
- ***Humayun-Nama*** is an account of his life written by his sister ***Gulbadan Begam*** during Akbar's reign.
- Shah Jahan's court poet Abu Talib Kalim Kashani wrote a poem on Humayun's tomb.
- **Tomb** - Akbar erected Humayun's tomb in Delhi. It is near the Purana Qila, the palace fortress, and other Mughal buildings.
- **Interests** - Humayun had immense knowledge and interest in astronomy and astrology.
- Humayun himself wrote scientific treatises including 'an introduction to the science of astronomy and some other unusual matters'.
- Humayun even planned to construct an observatory in India.

References

1. The Hindu - Humayun: the most intriguing ruler of the dynasty

Tsuchinshan-ATLAS - Comet C/2023 A3

Astronomers have spotted a comet which could be an exceptionally bright comet in the night sky in 2024.

- Comet C/2023 A3 (Tsuchinshan-ATLAS) was discovered by Purple Mountain Observatory in China and the Asteroid Terrestrical-impact Last Alert System, ATLAS in South Africa.
- The comet is currently between the orbits of Jupiter and Saturn, a billion kilometres from Earth.

- It is moving on an orbit that will bring it to within 59 million kilometres of the Sun (perihelion) in September 2024.
- The brightness of the comet could be nearly as bright as Sirius, which is the brightest star in the night sky.
- The brightness of the comet could be nearly as bright as Sirius, which is the brightest star in the night sky.
- Currently, only the most powerful telescopes on the planet can actually observe it, but in September 2024, it could potentially be visible even to the naked eye.
- **Similar Topic** - Green Comet - C/2022 E3 (ZTF)

References

1. The Hindu - A comet brighter than most stars we see
2. IE - Another exceptionally bright comet in 2024

Landslide Atlas of India

The Indian Space Research Organisation (ISRO) has released the Landslide Atlas of India, a detailed guide identifying landslide hotspots in the country.

- **Landslides** - A sudden movement of rock, boulders, earth or debris down a slope is termed as a landslide.
- They are natural disasters occurring mainly in mountainous terrains where there are conducive conditions of soil, rock, geology and slope.
- **Causes**
    1. Natural causes - includes heavy rainfall, earthquakes, snow-melting and undercutting of slopes due to flooding.
    2. Anthropogenic causes - activities such as excavation, cutting of hills and trees, excessive infrastructure development, and overgrazing by cattle.
- **Factors of influence** - lithology, geological structures like faults, hill slopes, drainage, geomorphology, land use and land cover, soil texture and depth, and weathering of rocks.



- **Landslide Atlas of India** - ISRO's National Remote Sensing Centre (NRSC), Hyderabad, has created 'Landslide Atlas of India'.
- It is a database of landslide-prone regions of India based on events during 1998 – 2022, primarily along the Himalayas and the Western Ghats.
- India is among the top 4 countries with highest landslide risk, where for every year the estimated loss of life per 100 km^2 is greater than one.
- Excluding snow covered areas, approximately 12.6% of the country's geographical land area (0.42 million sq. km) is prone to landslides.



- **Database and analysis** - The pan-India landslide database classifies landslides into – seasonal (2014, 2017 monsoon seasons), event-based and route-based (2000 – 2017).
- The NRSC carried out Landslide exposure analysis in the mountainous areas for their

exposure to landslides in terms of key socio economic parameters in 17 states and 2 UTs of India.

- ***Mizoram*** recorded 12,385 landslide events highest number of landslide events in the past 25 years.
- ***Rudraprayag*** in Uttarakhand has the highest landslide density and topped the list of all 147 districts in 17 states and 2 UTs.
- Department of Space had also undertaken the preparation of Landslide Susceptibility Zonation (LSZ) and Management maps in the Himalayas of Uttarakhand and Himachal Pradesh states.
- The inventory database of landslides is available in a web GIS platform in the Bhuvan portal.

According to the Statement of Climate of India 2022 released by the India Meteorological Department, heavy rain, floods and landslides claimed 835 lives in the country in 2022.

References

1. IE - ISRO releases the Landslide Atlas of India
2. NRSC - Landslide Atlas 2023 - pdf

Fluorescence Microscopy

Researchers at Winona State University, have created a design for a 'glowscope', a device that could democratise access to fluorescence microscopy.

An optical microscope views an object by studying how it absorbs, reflects or scatters visible light.

- **Principle** - A fluorescence microscope views an object by studying how it reemits light that it has absorbed, i.e. how it fluoresces.
- **Working** - The object is infused with fluorophores before being placed under the microscope.
- The object is illuminated with light of a specific wavelength.
- Fluorophores are particles in the object that absorb this light and reemit it at a higher wavelength (i.e. different colour).
- Different fluorophores are used to identify and study different microscopic entities.
- **Advantages** - A fluorescent microscope can track fluorophores as they move inside the object, revealing the object's internal shape and other characteristics.
- Affordable for students as well as researchers in resource-poor labs.
- A glowscope requires access to fluorophores, clip-on macro lens, LED flash lights and lighting filters.
- **Different versions** - epifluorescence and confocal laser-scanning microscopes.

Foldscope *- The Foldscope is a handheld microscope made mostly of paper. (costs around Rs 400)*
It has a magnification of around 140x and can identify objects just 2 micrometres wide.
It was created by researchers at Stanford University in 2014.
Researchers from the Indian Institute of Science (IISc), Bengaluru, have found that a foldscope that can be easily linked to a smartphone camera

References

1. The Hindu - Scientists devise ‘glowscope’ for fluorescent microscopy
2. The Hindu - Foldscopes linked to a smartphone camera

UPI for in-bound travellers

The Reserve Bank of India (RBI) has allowed in-bound travellers into India to use UPI.

- The Reserve Bank of India (RBI) recently has opened up the UPI channel of payments to non-resident Indians.
- To take this ahead by a step, it has allowed UPI for all foreign travellers entering India.
- A prepaid payment instrument (PPI) is issued for travellers from foreign countries in the form of wallets linked to UPI.
- **Issuer** - Authorised banks and NBFCs can issue ***rupee-denominated wallets*** to in-bound foreign travellers.
- Also be issued under co-branding arrangements with those permitted to deal with foreign exchange under FEMA.
- Currently, ICICI Bank, IDFC First Bank and two non-bank PPI issuers, Pine Labs Private Limited and Transcorp International are issuing UPI linked wallets.
- The regulator allows a fully KYC compliant wallet to hold up to Rs.2 lakh and this amount is extended to the travellers also.
- **Usage** - The wallet can be used only to make merchant payments for goods and services and not for transfer money.
- The unutilised money can be repatriated back to the customer from the wallet.
- The wallet can be loaded against cash or by swiping a credit card at the kiosk.
- **Limitations for now** - As a test case, the facility is open only to travellers from G20 countries as India is holding the G20 presidency.
- Only in-bound passengers in select international airports (Bengaluru, Mumbai and Delhi) can avail of the facility for now.

> ***UPI for NRIs*** - *UPI for NRIs is tagged to fully KYC compliant NRO/NRE accounts linked to their non-Indian mobile phone number and every time UPI is used, money is directly debited from their bank accounts.*

References

1. Business Line - Extending access to UPI for in-bound travellers
2. Economic Times - Foreign travellers in India can now use UPI

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