

18 APRIL 2019

U.S. astronaut to spend 11 months in space

In News

- NASA has announced extended assignments for astronauts at the International Space Station. NASA astronaut Christina Koch will spend 11 months at the International Space Station, setting a record for women.



About

- The current record-holder for female space fliers is by Peggy Whitson who had spent 288 days.
- The world’s space endurance record is held by Russia. A Russian cosmonaut-physician spent nearly 15 months on a single mission aboard the former Mir space station in the mid-1990s.
- The International Space Station (ISS) is a space station, or a habitable artificial satellite, in low Earth orbit. The ISS programme is a joint project among five participating space agencies: NASA(USA), Roscosmos (Russia), JAXA(Japan), ESA (European Union) and CSA(Canada).

Mars base simulator unveiled in Gobi desert

In news:

- Mars base simulator was unveiled in the middle of China’s Gobi desert.
- Chinese company C-Space has set up a Mars-based stimulator in the Gobi Desert. It acts an educational facility and hosts students. The company also plans to open the stimulator for tourists in 2020.

China had also established a village simulating the



environmental conditions on Mars, in northwest China’s Qinghai Province. The village was constructed in red rock area of the Qaidam basin in western Qinghai, which has been dubbed “the most Martian place on Earth.”

- The facility’s unveiling comes as China is making progress in its efforts to

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catch up to the United States and become a space power, with ambitions of sending humans to the moon someday.

- These projects are part of China's Mars exploration preparation. China has planned to send a probe to the Mars in 2020.
- Earlier in 2019, China had achieved a milestone after its spacecraft Chang'e-4 made first-ever soft landing on the far side of the moon

Rain, thunderstorms leave over 50 dead in four states

In news:

Over 50 people were killed as rains coupled with thunderstorm and lightning hit several parts of Rajasthan, Madhya Pradesh, Gujarat and Maharashtra causing damage to property and crops.

The unseasonal rain was part of a western disturbance. The IMD had warned that the western disturbance would be whetted by a surge of moisture from the Arabian Sea as well as from Bay of Bengal and would confluence over India bringing rain to several parts of Jammu and Kashmir, Uttarakhand, Himachal Pradesh and Rajasthan. The prevailing high temperature in Gujarat has attracted some of this moisture and caused the lightning and thunderstorm.

An ex-gratia of Rs 2 lakh each for the next of kin of those who lost their lives due to unseasonal rain & storms in MP, Rajasthan, Manipur & various parts of the country has been approved from the PM's National Relief Fund. Rs 50,000 each for the injured has also been approved.

What are Western Disturbances?

A Western Disturbance is an extratropical storm originating in the Mediterranean region that brings sudden winter rain to the northwestern parts of the Indian subcontinent. It is a non-monsoonal precipitation pattern driven by the westerlies and sub-tropical westerly Jetstream.

Disturbance means an area of "disturbed" or reduced air pressure. Equilibrium exists in nature due to which the air in a region tries to normalise its pressure.

In the term "extra-tropical storm", storm refers to low pressure. "Extra-tropical" means outside the tropics. As the Western Disturbance originates outside the tropical region, the word "extra-tropical" has been associated with them.

A Western Disturbance is associated with rainfall, snowfall and fog in northern India. Upon its arrival in Pakistan and northern India, clouds along with rain and snow also arrive. The moisture which Western Disturbances carry with them comes from the Mediterranean Sea and/or from the Atlantic Ocean.

It is highly useful for **Rabi crops**, especially wheat. Wheat requires moderate rainfall during its growing phase, but dry conditions during harvest phase.

This phenomenon occurs mainly during months of November-February.

But, the unseasonal rain and hailstorms have hit Gujarat's mango growers hard. The State is one of the country's top mango producers, especially of the Kesar variety.

Mentally ill convict escapes the noose

In news:

The judgment came in a case of double murder of minor girls, both aged below nine, by their neighbour in 1999. The convict from Maharashtra had raised the plea of post-conviction illness.

The Supreme Court held that, severe mental illness in a condemned

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person post his conviction is a factor for commuting the death penalty to life without remission, saying he was still a threat to society.

The court issued guidelines for determining post-conviction mental illness. It did not want convicts to exploit the relief as a loophole to cheat the hangman. The assessment of the disability should be done by a multi-disciplinary team of qualified professionals (medical practitioners and criminologists), including professionals with expertise in the particular mental illness of an accused.

It would be up to the convict to prove with clear evidence that he suffered from severe mental illness. He had to demonstrate active, residual or prodromal symptoms. The state could also offer evidence to rebut the claim. In appropriate cases, the courts could set up panels of experts.

Previous instance:

In 2013: The Madras high court has declared invalid the death penalty awarded to 49-year-old R Maruthu alias Maruthupandian by Pudukottai mahila court on January 23, 2012, for clubbing to death five persons, including two women, on the ground that the convict was suffering from a mental illness, paranoid schizophrenia, at the time of the murder.

It fell within “the general exception contained under **section 84 of IPC**”, it was not an offence. It says “nothing is an offence which is done by a person who, at the time of doing it, by reason of unsoundness of mind, is incapable of knowing the nature of the act, or that he is doing what is either wrong or contrary to law”.

Pardoning power of President and Governor:

- Governor cannot pardon a death sentence. Even if a state law prescribes for death sentence, the power to grant pardon lies with the President and not the governor. But, the governor can suspend, remit or commute a death sentence. He does not possess any such power.

Scientists revive brain function in dead pigs

In News:

Scientists restored the cell function in the brains of pigs hours after they died.

In Brief:

In human and large mammal brains, cells crucial for neural function begin to degrade as soon as blood supply is cut -- a process long considered to be irreversible.

But the findings of the trial, show that the brains of pigs can have their blood flow and cell function restored even hours after death.

The Experiment:

The team from the NIH BRAIN initiative, a federally funded US research programme, used the brains of 32 pigs that had been slaughtered for food and discarded, without blood or glucose flow, for four hours each.

Then, using a tissue support system that pumps a liquid designed to mimic blood through organs, they rehydrated the brains for a further six hours.

Some brains received the patented life-support solution and others were given a control substance.

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Flickers of life

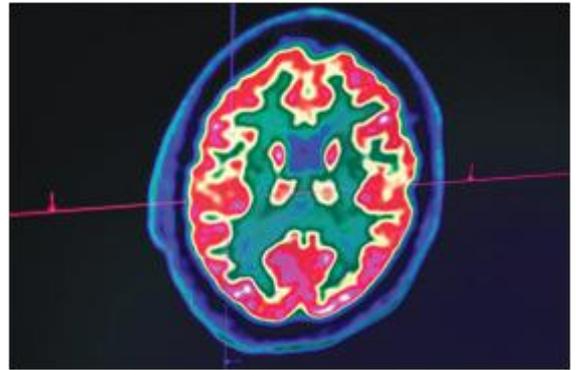
The brains that received the artificial blood had basic cell function restored.

Their blood vessel structure was revived, and the team even observed some localised processes -- including in synapses and immune responses -- flickering back to life.

Those that received the control solution turned within hours

The main conceptual finding is this: cell death in the brain occurs across a longer time period than we previously thought.

The findings suggest that scientists may have underappreciated the brain's capacity for self-restoration after a patient is declared brain dead.



A.I Gemini

Why in news?

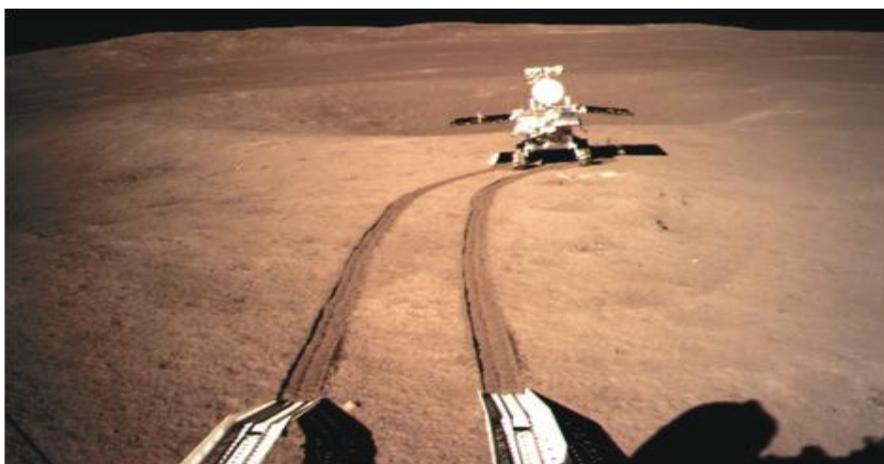
- A.I Gemini is the artificial intelligence robot which creates its own paintings.
- It was created by a Hong Kong based artist.
- The robot actually painted the images of the moon taken by China's Chang'e-4 lunar rover.



CHANG'E 4

About Chang'e 4 project:

- Chang'e 4 is a Chinese lunar exploration mission that aims to explore the far side of the Moon.
- It achieved the first soft landing on the far side of the Moon, on 3rd January 2019.
- The mission is the follow-up to Chang'e 3, the first Chinese landing of the Moon.



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CHENCHU TRIBE

About Chenchu Tribe:

- The Chenchus are Adivasi, a designated Scheduled Tribe in the Indian states of Andhra Pradesh, Telangana, Karnataka and Odisha.
- They speak the Chenchu language, a member of the Dravidian language family.
- Many Chenchus live in the dense **Nallamala forest** of Andhra Pradesh.
- They are referred to as one of the **Particularly Vulnerable Tribal Groups** that are still dependent on forests and do not cultivate land but hunt for a living.

Particularly Vulnerable Tribal Groups (PVTGs)

- PVTG (earlier Primitive Tribal Groups) was the category with in Scheduled Tribes created on recommendation of **Dhebar commission**.



- Presently there are 75 tribal groups categorized by Ministry of Home Affairs as Particularly Vulnerable Tribal Groups (PVTGs).
- PVTGs reside in 18 States and UT of A&N Islands.

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