

**PRELIMS EDGE 2025****16-07-2025**

THE GENETIC ENGINEERING APPRAISAL COMMITTEE (GEAC)

Context: The field trials of two kinds of genetically modified (GM) maize are expected to begin in the ongoing kharif (summer) season at the Punjab Agricultural University, days after the Genetic Engineering Appraisal Committee, the country's top regulator for the sector, gave the nod for the trials.

About GEAC

- The GEAC is the **apex regulatory body overseeing activities related to genetically modified organisms (GMOs)** in India, particularly their release into the environment.
- It is the **statutory committee** constituted under the "Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells (Rules, 1989)" framed under the Environment (Protection) Act, 1986.
- It was earlier called the Genetic Engineering Approval Committee, which was changed to Genetic Engineering Appraisal Committee in the year 2010.

- It functions in the **Ministry of Environment, Forest, and Climate Change (MoEF&CC).**

The functions of GEAC as prescribed in the Rules 1989 are as follows:

- To appraise activities involving large-scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
- To appraise proposals relating to the release of genetically engineered organisms and products into the environment, including experimental field trials.
- The committee or any persons authorized by it has powers to take punitive action under the Environment Protection Act.
- It keeps a check on the use, import, and export of genetically modified (GM) organisms and crops.
- Clearance of GEAC is mandatory for the environmental release of GM crops.

Composition:

- GEAC is chaired by the Special Secretary/Additional Secretary of MoEF&CC and co-chaired by a representative from the Department of Biotechnology (DBT).
- Presently, it has 24 members and meets every month. The members comprise experts from other ministries as well as

institutions such as the ICAR, ICMR, CCMB, and so on.

Source: 'Confined field trials' on GM maize to begin soon at Punjab Agricultural University (The Hindu)

TERMS IN NEWS

Nebula



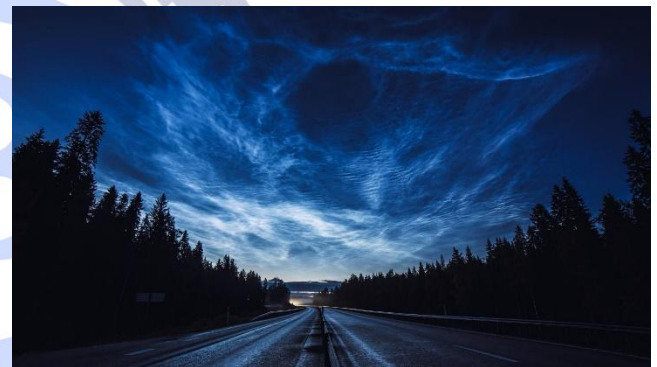
- A nebula is a giant cloud of dust and gas in space.
- Some nebulae (more than one nebula) come from the gas and dust thrown out by the explosion of a dying star, such as a supernova.
- Other nebulae are regions where new stars are beginning to form. For this reason, some nebulae are called “star nurseries.”

How do stars form in a nebula?

- Nebulae are made of dust and gases—mostly hydrogen and helium.
- The dust and gases in a nebula are very spread out, but gravity can slowly begin to pull together clumps of dust and gas.
- As these clumps get bigger and bigger, their gravity gets stronger and stronger.
- Eventually, the clump of dust and gas gets so big that it collapses from its own gravity.

- The collapse causes the material at the center of the cloud to heat up—and this hot core is the beginning of a star.
- **Nebulae existing the space between the stars—also known as interstellar space.**
- The closest known nebula to Earth is called the **Helix Nebula**.
- It is approximately 700 light-years away from Earth.
- Nebulas come in many shapes and sizes and can be further divided into several subcategories, including planetary nebulae, supernova remnants, dark nebulae, and emission nebulae.

Noctilucent Clouds



- They are thin, wispy clouds that glow with a blue or silvery hue at night when illuminated by sunlight from below the horizon.
- Horizon refers to the apparent line that separates the Earth from the sky—specifically, the point below which the Sun appears to set.
- The name ‘noctilucent’ is derived from the Latin words “nocto” and “lucent” which translates to “night” and “shining” respectively.
- They are sometimes referred to as polar mesospheric clouds.

- Most of our planet's clouds form in the Earth's troposphere. Noctilucent clouds are located in the third layer of Earth's atmosphere, the mesosphere, making them Earth's highest clouds.
- They only appear during the summer months, and only at latitudes between about 45 and 80 degrees north or south of the equator.
- In the Northern Hemisphere, they can appear from the end of May to the beginning of August, with sightings more likely during June and July.
- In the Southern Hemisphere, noctilucent cloud sightings are much rarer, but they can be visible from the end of November to the beginning of February, with sightings most likely during December and January.
- In these months and at the right latitudes, the Sun only just sets below the horizon at nighttime.
- That means these very high clouds can still be lit by bright sunlight from below, even though the rest of the surface is in darkness – making the clouds appear to glow.
- The Sun sets increasingly less below the horizon the further north you go, which means northern latitudes will experience noctilucent clouds for longer during the night.

Formation

- They are formed of ice crystals; in the summer the mesosphere becomes cold enough to allow ice to form on suspended dust particles floating in the atmosphere.
- The dust particles may originate from micrometeorites falling to Earth from space, or the dust left over from volcanic eruptions.

- Humans have also accidentally seeded our own noctilucent clouds through the exhausts of rockets propelled into space.
- The ice crystals that form reflect the sunlight when the Sun hits them from below, causing the clouds' characteristic shimmer.

Arboviral diseases

- **Arboviral diseases** are infections caused by **arthropod-borne viruses transmitted to humans through bites of infected insects, mainly mosquitoes and ticks.**
 - It is commonly transmitted by **Aedes mosquitoes.**
 - The Aedes aegypti mosquito **can transmit several viruses** within the same region, often at the same time.
 - **Example:** Common examples include **West Nile, Zika, Chikungunya, Dengue, and Eastern equine encephalitis.**
 - **Transmission:** Some viruses may also spread through **blood transfusion, organ transplant, sexual contact, or mother-to-child transmission.**
 - **Symptoms:** Fever, diarrhoea, vomiting, body aches, skin rash, bleeding (in dengue and yellow fever), headache, neck stiffness, excessive sleepiness, seizures, and unconsciousness—often appearing within a few days to two weeks after a mosquito or tick bite.
 - **Prevention:** Use insect repellents, wear protective clothing, and eliminate standing water to reduce mosquito breeding. Ensure window and door screens are intact.

Global Risk & Impact

- Over **5.6 billion people** globally are at **risk** of arboviral infections.
- These diseases are **endemic to tropical and subtropical regions** and are **rapidly expanding** in range.
- Infections often appear with **similar flu-like symptoms**, making diagnosis challenging.
- **Simultaneous circulation** of multiple arboviruses is common in several regions.

SCHEMES IN NEWS

Pradhan Mantri Divyasha Kendra

- It is a unique initiative aimed at providing **integrated services** under one roof—including assessment, evaluation, counselling, distribution, and post-distribution care—for eligible **Divyangjan** (persons with disabilities) and **elderly beneficiaries**.
- These centres are being established through ALIMCO (Artificial Limbs Manufacturing Corporation of India), a Central Public Sector Undertaking under the Department of Empowerment of Persons with Disabilities (DEPwD).
- The newly established PMDK at Badaun would **provide assistive aids and appliances** under the ADIP Scheme for Divyangjan and the **Rashtriya Vayoshri Yojana** (RVY) for senior citizens.
- Devices such as tricycles, wheelchairs, hearing aids, walkers, artificial limbs, and mobility support accessories would be offered free of cost to eligible beneficiaries.
- The initiative has already benefited over 1.40 lakh individuals with assistive devices worth more than ₹179.15 lakh.

- **Significance:** It significantly reduces the travel and logistical challenges faced by local beneficiaries, offering them accessible, dignified, and timely services at the regional level
- **Concerned Ministry:** The Union Ministry of Social Justice & Empowerment, Government of India.

PLACES IN NEWS

West Bank



- The West Bank is a **landlocked territory near the coast of the Mediterranean in Western Asia** that forms the main bulk of the **Palestinian territories**.
- It is **bordered by Jordan and the Dead Sea to the east and by Israel to the south, west, and north**.
- It was captured by Jordan after the Arab-Israeli War (1948) but Israel snatched it back during the Six-Day War of 1967 and has occupied it ever since.
- One of its major cities is **Ramallah**, the de facto administrative capital of Palestine.

- At present, there are around 130 formal Israeli settlements along with 26 lakh Palestinians at West Bank.
- The Palestinians want the West Bank to form the main part of their future state.

PRACTICE QUESTIONS

Q1: Which among the following do not share borders with West Bank?

- A. Jordan
- B. Dead Sea
- C. Israel
- D. Lebanon

Q2 : Consider the following statements regarding The Genetic Engineering Appraisal Committee?

1. The GEAC is the apex regulatory body overseeing activities related to genetically modified organisms (GMOs) in India, particularly their release into the environment.
2. It functions in the Ministry of Environment, Forest, and Climate Change (MoEF&CC).
3. Clearance of GEAC is mandatory for the environmental release of GM crops.

How many of the above statements are incorrect?

- A. Only One
- B. Only Two
- C. All of the Above
- D. None of the Above

Q3: It is a giant cloud of dust and gas in space. These regions are where new stars are beginning to form. For this reason, some they are called "star nurseries."

Which among the following fits the above given description?

- A. Nebula
- B. Pulsars
- C. Wormholes
- D. Event Horizon

Q4 : They are thin, wispy clouds that glow with a blue or silvery hue at night when illuminated by sunlight from below the horizon. They are formed of ice crystals; in the summer the mesosphere becomes cold enough to allow ice to form on suspended dust particles floating in the atmosphere. They only appear during the summer months, and only at latitudes between about 45 and 80 degrees north or south of the equator.

Which among the following fits the above given description?

- A. Event Horizon
- B. Nacreous Clouds
- C. Altostratus clouds
- D. Noctilucent Clouds

Q5: Consider the following statements regarding Arboviral Diseases

1. Arboviral diseases are infections caused by arthropod-borne viruses transmitted to humans through bites of infected insects, mainly mosquitoes and ticks.
2. It is commonly transmitted by Aedes mosquitoes.
3. Simultaneous circulation of multiple arboviruses is common in several regions.

How many of the above statements are correct?

- A. Only One
- B. Only Two
- C. All of the Above
- D. None of the Above

Answers

- 1. D
- 2. D
- 3. A
- 4. D
- 5. C

