

UPSC CURRENT AFFAIRS MCQS 15-01-2024

1. Question

Consider the following statements about Thylakoid Membranes

1. Chlorophyll is located within the thylakoid membrane of the chloroplast.
2. The thylakoid membrane is the site of photochemical and electron transport reactions of oxygenic photosynthesis.

Choose the correct statements:

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Solution (c)

Thylakoids are little pouches located in the chloroplasts of plants.

They store chlorophyll, the substance in plant that reacts to sunlight and triggers photosynthesis.

They are found in ancient, light-sensitive bacteria called cyanobacteria.

Thylakoids in even older cyanobacterial microfossils may have played a major role in the 'Great Oxygenation' of the early Earth around 2.4 billion years ago.

Around that time, the oxygen released by cyanobacteria, filled the ocean and made its waters oxygen rich.

Over time, this oxygen started escaping into the atmosphere, where it reacted with methane.

As more oxygen escaped, methane was eventually displaced, and oxygen became a major component of the atmosphere. This event is known as the Great Oxidation Event.

The thylakoid membrane is the site of photochemical and electron transport reactions of oxygenic photosynthesis.

The lipid composition of the thylakoid membrane is 2 galactolipids with 1 sulfolipid and 1 phospholipid.



Besides providing a lipid bilayer matrix, thylakoid lipids are integrated in photosynthetic complexes particularly in photosystems I and II and play important roles in electron transport processes.

Context: The recent discovery found that thylakoids in even older cyanobacterial microfossil might have played a major role in the 'Great Oxygenation' of the early Earth around 2.4 billion years ago.

2. Question

Consider the following statements about Operation AMRITH

1. The objective is to promote Ayush health, health education in the village.
2. It is a joint initiative of Ministry of Ayush and Ministry of Rural Development.

Choose the incorrect statements:

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Solution (d)

Operation AMRITH – Antimicrobial Resistance Intervention for Total Health to prevent the overuse of antibiotics in the state.

Operation Amrith is aimed at conducting surprise raids in retail medical shops for detecting OTC sale of antibiotics that was launched by the Kerala state government.

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Under the operation a Toll Free Number is provided for lodging complaints against medical shops, according to the department.

Context: The Operation AMRITH was recently conducted by the Kerala state government to tackle antimicrobial resistance.

3. Question

Which of the following Tiger Reserve has been designated as India's first Dark Sky Park and the fifth in Asia, protecting the night sky and preventing light pollution?

- a) Kaziranga Tiger Reserve
- b) Tadoba-Andhari Tiger Reserve
- c) Pench Tiger Reserve
- d) Sariska Tiger Reserve

Solution (c)

India's First Dark Sky Park

The Pench Tiger Reserve (PTR) in Maharashtra is India's first Dark Sky Park within a tiger reserve for earmarking areas around the park that restrict light pollution for stargazers to access pristine dark skies.

Dark Sky Place certification focuses on lighting policy, dark sky-friendly retrofits, outreach and education, and monitoring the night sky.

This designation positions PTR as a sanctuary where tourists can witness celestial spectacles, shielded from the intrusion of artificial light pollution.

PTR became the fifth such park in Asia.

The certification was given by the International Dark-Sky Association, a global dark-sky movement to promote astronomy.

Context: The Pench Tiger Reserve in Maharashtra has been designated as India's first Dark Sky Park and the fifth in Asia, protecting the night sky and preventing light pollution.

4. Question

Consider the following statements about LiDAR

1. LiDAR works in a similar way to Radar and Sonar yet uses light waves from a laser, instead of radio or sound waves.
2. Lidar is a remote sensing method that uses pulsed laser to measure ranges to the Earth.
3. Lidar systems allow mapping both natural and man-made environments with accuracy, precision, and flexibility.



How many of the statements given above are correct?

- a) Only one
- b) Only two
- c) All three
- d) None of the above

Solution (c)

LiDAR works in a similar way to Radar and Sonar yet uses light waves from a laser, instead of radio or sound waves.

Lidar, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.

These light pulses—combined with other data recorded by the airborne system — generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

A lidar instrument principally consists of a laser, a scanner, and a specialized GPS receiver.

Airplanes and helicopters are the most commonly used platforms for acquiring lidar data over broad areas.

How Does it Work?

A LiDAR system calculates how long it takes for beams of light to hit an object or surface and reflect back to the laser scanner.

The distance is then calculated using the velocity of light. These are known as ‘Time of Flight’ measurements.

Two types of lidar are topographic and bathymetric.

Topographic lidar typically uses a near-infrared laser to map the land, while bathymetric lidar uses water-penetrating green light to also measure seafloor and riverbed elevations.

Lidar systems allow scientists and mapping professionals to examine both natural and man-made environments with accuracy, precision, and flexibility.

Context: A huge city hidden by the luxuriant vegetation of the Amazon rainforest was recently discovered in Ecuador by a LiDAR survey.



5. Question

Consider the following statements about PM-eBus Sewa Scheme

1. Under PM-eBus Sewa Scheme, 10,000 e-buses will be deployed across cities in the country.
2. Under this scheme, city bus operations will be done on Public Private Partnership (PPP) model.
3. The Central Government will be responsible for running the bus services and making payments to the bus operators.

How many of the statements given above are correct?

- a) Only one
- b) Only two
- c) All three
- d) None of the above

Solution (b)

Under PM-eBus Sewa Scheme, 10,000 e-buses will be deployed across cities in the country.

Support for Operation:

Under this scheme, city bus operations will be done on Public Private Partnership (PPP) model.

This scheme will support bus operations for 10 years.

Support for Operation:

Under this scheme, city bus operations will be done on Public Private Partnership (PPP) model.

This scheme will support bus operations for 10 years.

States/Cities shall be responsible for running the bus services and making payments to the bus operators.

The Central Government will support these bus operations by providing subsidy to the extent specified in the proposed scheme.

Funding:

It has been allocated a total funding of Rs 57,613 crore.



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Out of this financial provision, the central government will contribute Rs 20,000 crore, while the remaining portion will be covered by the state governments.

Coverage: The scheme will cover cities with 3 lakhs and above population and priority will be given to cities not having organised bus services.