

UPSC CURRENT AFFAIRS MCQS 26-09-2023

Q1. Consider the following statements:

1. Project 15 Fuel Cell buses is an initiative of the Ministry Petroleum and Natural Gas.
2. India's First Green Hydrogen-Powered Fuel Cell Bus will travel between Mumbai to Gandhi Nagar.

Which of the above statements is/are correct?

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

Answer: (a)

Explanation: Recently the Ministry of Petroleum and Natural Gas announced that it will flag off the 1st Green Hydrogen Fuel Cell Bus at Kartavya Path in Delhi. Green Hydrogen, produced using renewable energy, has the potential to play a key role in such low-carbon and self-reliant economic pathways. Fuel cells vehicles have inherent advantages of long range and lower refuelling time as compared to battery vehicles. IndianOil has initiated a scientifically designed program to undertake operational trials of 15 Fuel Cell buses powered by Green hydrogen on the identified routes in Delhi, Haryana and U.P. IndianOil has also established a state-of-the-art dispensing facility at our R&D Faridabad campus that can refuel green hydrogen produced from electrolysis using solar PV panels. Hence, statement 2 is incorrect.

Q2. Necroptosis, sometimes seen in the news is related to which of the following?

- (a) It is a form of regulated cell death in the human brain.
- (b) The drug approved by the Indian Medical Association for Alzheimer's disease.
- (c) It is a treatment procedure for the recovery of people affected by AIDS.
- (d) A new organic and sustainable method to treat Nuclear Waste Water.

Answer: (a)

Explanation: The scientists have recently figured out the process of the death of the brain cells that can help in Alzheimer's treatment. Cell death usually happens as an immune response to infection or inflammation and rids the body of undesirable cells. When the supply of nutrients collapses, the cells swell up, destroying a plasma membrane. The cells get inflamed and die off. The amyloid and tau are the abnormal proteins that develop in the brain. Cells in Alzheimer's patients get inflamed when amyloid protein gets into neurons in the brain. The amyloid clumps into so-called plaques and the fiber-like tau protein forms its own bundles, known as tau tangles. Neurons exposed to amyloid plaques and tau tangles initiate a cell death process called necroptosis. Necroptosis or cell death is a direct connection between these abnormal proteins, amyloid and tau. Hence, option (a) is correct.

Q3. Consider the following statements regarding Caribbean box jellyfish:

1. It is only one centimetre long and lacks a brain.
2. It is capable of associative learning.
3. It can be trained to foresee and avoid future problems.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (c)

Explanation: Despite the lack of a brain, researchers have demonstrated that the Caribbean box jellyfish can learn to avoid obstacles via visual and mechanical cues. These are less than a millimetre long and lack a brain. It is a member of the Cnidaria phylum (the animal group comprised of jellyfish, sea anemones, and coral). *Tripedalia cystophora*, or Caribbean box jellyfish, is recognized for its ability to negotiate murky water and a maze of hidden mangrove roots. These gelatinous, fingernail-sized animals can avoid swimming into barriers by learning from visual signals. It possesses cognitive abilities never before seen in animals with such a basic neural system. Their "associative learning" capacity is equivalent to that of significantly more evolved animals such as fruit flies or mice. They have four rhopalia, or visual sensory centers, each with lens-shaped eyes and roughly a thousand neurons that aid in avoiding damage. They can be trained to "predict a future problem and try to avoid it" through "operant conditioning." Hence, all statements are correct.

Q4. With reference to Ephemerals, consider the following statements:

1. They are plants that have one or more generations per year and grow only during favourable periods and passing the unfavourable periods in the form of seeds.
2. Ephemerals produce tough seeds that withstand drought and other extreme conditions in harsh environments.

Which of the above statements is/are correct?

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



Answer: (C) Explanation: In botany, an ephemeral plant can be defined as one that has one or more generations per year, growing only during favourable periods (such as when adequate moisture is available) and passing the unfavourable periods in the form of seeds. Some species' seed coats contain a growth inhibitor that can only be washed away by a large amount of water, preventing germination after only a brief shower. Ephemerals produce tough seeds that withstand drought and other extreme conditions in harsh environments. Ephemerals are certain plant species wait throughout the year to bloom only during the monsoon. Ex: Ground orchids, lilies, wild yam etc. These flowers act as an important source of nectar and pollen for native pollinators, thus preserving ecosystem. Hence, both statements are correct.

Q5. Asola Bhati Wildlife Sanctuary is located in which states/UTs of India

- (a) Gujarat
- (b) Ladakh
- (c) Uttar Pradesh
- (d) Delhi

Answer: (d)

Explanation: The Wildlife Institute of India (WII), Dehradun, is likely to conduct a study on the biodiversity of the Asola Bhatti Wildlife Sanctuary in Delhi and prepare a management plan. A report released last year based on a camera-trap study at the sanctuary, which covers an area of 32.71 sq km and is part of the Ridge in South Delhi, had pointed to the presence of eight leopards and two to four striped hyenas at the sanctuary. Hence, option (d) is correct.