

Q: Consider the following statement regarding Green Methanol Project:

1. It involves capturing carbon from NTPC power plants and converting it into a green fuel.
2. It serves as a base material for the chemical industry.
3. It cannot be considered as a substitute fuel for maritime fuel applications.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: a

Explanation:

- The Green Methanol Project involves capturing carbon from NTPC power plants and converting it into a green fuel.
- Green Methanol has a wide range of applications, including serving as a base material for the chemical industry, storing renewable electricity, and even as a transportation fuel.
- It is also considered as a substitute fuel for maritime fuel applications.

Q: Consider the following statement regarding LOTUS Project:

1. It is a joint initiative of NASA and Ministry of Jal Shakti.
2. A core element of the LOTUS project is to develop a novel water quality sensor.
3. It will provide a low-cost water quality monitoring and safe drinking water supply solution to the Indian citizens.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: b

Explanation:

- The LOTUS Indo-European project, an initiative of the Department of Science and Technology and the European Commission, is aimed at providing solutions for issues related to the quality of water supplied across Indian households and elsewhere.
- A core element of the LOTUS project is a novel water quality sensor that builds on previous work done at Ecole Polytechnique, Paris, France.
- The sensor was further developed during the project by researchers at University Gustave Eiffel in collaboration with IIT Guwahati and the SME EGM, Sophia Antipolis, France.
- Successful commercialisation of the LOTUS water quality sensor will provide a low-cost water quality monitoring and safe drinking water supply solution to the Indian citizens which is in line with the vision of the Jal Jeevan Mission of the government of India and its Make-in-India initiative.

Q: Consider the following statement regarding Open Credit Enablement Network (OCEN):

1. It could be integrated with a wide range of digital platforms and apps.
2. It aims to empower individuals and micro, small, and medium enterprises (MSMEs) by directly delivering financial products to them.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: c

Explanation:

- The Open Credit Enablement Network (OCEN) is an emerging digital public good (DPG) that has the potential to democratise and transform India's digital lending landscape.
- Designed as a framework of Application Programming Interfaces (APIs), OCEN could be integrated with a wide range of digital platforms and apps.
- It aims to empower individuals and micro, small, and medium enterprises (MSMEs) by directly delivering financial products to them, thereby eliminating their dependence on traditional lenders.

Q: Consider the following statement related to Age-related Macular Degeneration (AMD):

1. The outer blood-retina barrier consists of the retinal pigment epithelium (RPE), separated by Bruch's membrane.
2. Bruch's membrane regulates the exchange of nutrients and waste between the choriocapillaris and the RPE.
3. Lipoprotein deposits called drusen form outside Bruch's membrane, impeding its function.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: d

Explanation:

- The outer blood-retina barrier consists of the retinal pigment epithelium (RPE), separated by Bruch's membrane from the blood-vessel rich choriocapillaris.
- Bruch's membrane regulates the exchange of nutrients and waste between the choriocapillaris and the RPE.
- In AMD, lipoprotein deposits called drusen form outside Bruch's membrane, impeding its function. Over time, the RPE break down leading to photoreceptor degeneration and vision loss.

Q: Consider the following statement regarding PATRIOT Missile:

1. It was first deployed in the field in the 1991 Gulf War.
2. It is considered one of the most advanced interceptors and air defense systems in the military theatre.
3. It is a surface-to-surface missile defence system.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: a

Explanation:

- The Phased Array Tracking Radar for Intercept on Target (PATRIOT) is a surface-to-air missile defense system which is considered one of the most advanced interceptors and air defense systems in the military theatre.
- Developed by Raytheon Technologies Corp, it is a system of truck-mounted launching system with eight launchers that can hold up to four missile interceptors each, a ground radar, a control station, and a generator.
- The Patriot battery was first deployed in the field in the 1991 Gulf War, with batteries protecting Saudi Arabia, Kuwait, and Israel, and later used during the U.S. invasion of Iraq in 2003.
- The U.S. batteries are regularly deployed around the world. The system needs as many as 90 troops to operate and maintain it.