

Q: Consider the following statement regarding Indian space tech startup Pixxel Space:

1. It aims to put a constellation of 30+ hyperspectral earth observation micro-satellites into a sun-synchronous orbit.
2. Pixxel launched the first of its three-demonstration satellite through a hosted camera payload.
3. Arybhata and Aditya are a part of the three demonstration satellites that it planned to launch.

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:

- Indian space tech startup Pixxel Space has bagged a five-year contract from the US National Reconnaissance Office to provide hyperspectral imagery.
- Pixxel is an India based private space Technology Company, aiming to put a constellation of 30+ hyperspectral earth observation micro-satellites into a sun-synchronous orbit in 2020s.
- Pixxel launched the first of its three demonstration satellite through a hosted camera payload partnership with the Lithuanian firm, NanoAvionics on 30 June 2021.
- Anand and Shakuntala are a part of the three demonstration satellites that Pixxel planned to launch. It plans to launch the first 6 satellites of its Firefly constellation in 2023 and 12 more by the end of 2024.

Q: Consider the following statement regarding Hyperspectral images:

1. It is made of three primary colours only across the electromagnetic spectrum.
2. It enables users to obtain information about each pixel in an image.
3. Pixel satellites capture images at hundreds of wavelengths in the electromagnetic spectrum.

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:

- Hyperspectral images are made up of light from hundreds of colors across the electromagnetic spectrum. Since hyperspectral imaging collects many different colors of light, any given object will have a unique signature.
- This enables users to obtain information about each pixel in an image, with the goal of identifying objects and materials. The imagery is used in the fields of agriculture, mining, geology, and intelligence and surveillance.
- Pixel satellites capture images at hundreds of wavelengths in the electromagnetic spectrum and reveal key data about the health of our planet.

Q: Consider the following statement:

1. Relativity Space successfully launched the world's first 3-D printed rocket into space.
2. 3D-printed metal parts made up 85% of the rocket, named Terran.

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:

- Recently, Relativity Space successfully launched the world's first 3-D printed rocket into space. However, the mission was not fully successful as it failed to reach orbit. The mission, which was not carrying any form of payload, failed nearly three minutes into the flight.
- The startup is aiming to revolutionise space travel and the satellite launch market with 3D printing replacing the traditional casting of rockets.
- 3D-printed metal parts made up 85% of the rocket, named Terran. Larger versions of the rocket will have even more and also be reusable for multiple flights.

Q: Consider the following statement regarding recently launched National Crop Insurance Portal's digitized claim settlement module namely DigiClaim:

1. Farmers' claims will be processed directly to their respective bank accounts in a transparent and accountable manner.
2. The technology has been enabled through the integration of National Crop Insurance Portal (NCIP) and Public Finance Management System (PFMS).
3. The farmers would be able to track the claim settlement process on their mobile phones in real-time and avail the scheme's benefits.

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:

- In the current system, there have been several instances of insured farmers' claims being delayed due to a variety of factors. With the DigiClaim Module now farmers' claims will be processed directly to their respective bank accounts in a transparent and accountable manner.
- This technology has been enabled through the integration of National Crop Insurance Portal (NCIP) and Public Finance Management System (PFMS).
- This would directly impact the claim reversal ratio, which is expected to go down with DigiClaim.
- Another noteworthy feature of this digital advancement is that farmers would be able to track the claim settlement process on their mobile phones in real-time and avail the scheme's benefits.

Q: Consider the following statement regarding Compensatory afforestation:

1. It means forest land is diverted for non-forest purposes such as mining or industry.
2. 90% of the CAF money is to be given to the states while 10% is to be retained by the Centre.
3. The fund is not used for wildlife protection.

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:

- Compensatory afforestation means that every time forest land is diverted for non-forest purposes such as mining or industry, the user agency pays for planting forests over an equal area of non-forest land, or when such land is not available, twice the area of degraded forest land.
- As per the rules, 90% of the CAF money is to be given to the states while 10% is to be retained by the Centre.
- The funds can be used for treatment of catchment areas, assisted natural generation, forest management, wildlife protection and management, relocation of villages from protected areas, managing human-wildlife conflicts, training and awareness generation, supply of wood saving devices and allied activities.