

## Answers

### 1) A

- In many countries, including India the VOC, by virtue of increased transmissibility, has started off a new wave(s) of epidemic transmission.
- Immune to antibodies generated by previous vaccination or infection: Most vaccines were made using antigens made from D614G variant. However, these vaccines show low efficacy on the South African, Brazil and UK variants. Hence, re-infection can occur in spite of immunity provided by earlier D614G infection or vaccination.
- Virulence: It is the ability to cause severe/life-threatening disease. The UK variant has the worse virulence. The South Africa and Brazil variants do not seem to have higher virulence.

### 2) A

- The Gravity Recovery and Climate Experiment, or GRACE, mission flew twin spacecraft in tandem around Earth to study key changes in the planet's waters, ice sheets and the solid Earth.
- It was a joint mission under NASA & German Aerospace Center
- Among its innovations, GRACE has monitored the loss of ice mass from Earth's ice sheets, improved understanding of the processes responsible for sea level rise and ocean circulation, provided insights into where global groundwater resources may be shrinking or growing and where dry soils are contributing to drought, and monitored changes in the solid Earth

### 3) A

Pyrolysis is a process of chemically decomposing organic materials at elevated temperatures in the absence of oxygen. The process typically occurs at temperatures above 430 °C (800 °F) and under pressure.

It simultaneously involves the change of physical phase and chemical composition of organic material. Pyrolysis is an irreversible process. Pyrolysis is used to convert biomass into Synthesis Gas or Syngas and biochar

### 4) A

Department of Agriculture and Farmers Welfare under its flagship scheme of Paramparagat Krishi Vikas Yojna (PKVY) has launched the Large Area Certification Scheme.

To provide a unique and quick organic certification to harness the potential land areas for organic products. Under LAC, each village in the area is considered as one cluster/group. Documentations are simple and maintained village-wise.

All farmers with their farmland and livestock need to adhere to the standard requirements. After verification, they will get certified as a group. Once issued they don't need to go under conversion period. So, the farmers do not have to wait for 2-3 years for marketing PGS organic certified products.

## **5) B**

It aims to provide financial assistance to the elderly, widows and persons with disabilities in the form of social pensions. It currently covers more than three crore people who are below the poverty line (BPL), including about 80 lakh widows, 10 lakh disabled and 2.2 crore elderly.

## **6) B**

- Zoonotic diseases are those which are transmitted to humans from animals. Anthropozoonotic diseases are the one which are transmitted from humans to animals.
- Some diseases like HIV do begin as zoonoses but can later mutate to human-only strain also.
- West Nile Virus (WNV) infection is a mosquito-borne zoonotic disease. The virus is transmitted among birds via the bite of infected mosquitoes and incidentally humans and other mammals also became infected.

## **7) A**

5G services will provide up to 1 Gbps (Gigabit per second) of download speed. It is 100 times higher than the existing network speed. The upload time will also increase drastically. The energy efficiency of devices and stability of network connections will improve further with the 5G technology.

5G services work across the low, medium and high-frequency spectrums. This will avoid any network congestions. 5G services will have ultra-low latency (time taken by a network to respond). Latency for is predicted to be below 10 milliseconds, and in best cases around 1 millisecond. Latency for 4G is around 20-30 milliseconds.

## **5Gi Technology**

5Gi stands for 5G Radio Interface Technology. It has been developed by the Indian Institute of Technology-Madras, Centre of Excellence in Wireless Technology and the IIT-Hyderabad.

Purpose: 5Gi technology is primarily meant to enhance rural coverage. It facilitates much larger reach of the 5G towers and radio networks. Hence, it is a major breakthrough for bridging the rural-urban digital divide in 5G deployment.

Approved by: 5Gi standard has also been approved by the International Telecommunications Union.

### 8) C

- NPOP grants organic farming certification through a process of third-party certification. It involves the accreditation program for Certification Bodies, standards for organic production, promotion of organic farming etc.
- It is implemented by Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry.
- The NPOP standards for production and accreditation system have been recognized by the European Commission, Switzerland and USA as equivalent to their respective accreditation systems.
- This enables India to export unprocessed plant products to these countries without the requirement of additional certification. NPOP also facilitates export of Indian organic products to the United Kingdom even in the post Brexit phase.
- NPOP has also been recognized by the Food Safety Standard Authority of India (FSSAI) for trade of organic products in the domestic market. Organic products covered under the bilateral agreement with NPOP need not to be recertified for import in India.

### 9) D

US launched 4 astronauts to the International Space Station(ISS) as part of a collaboration between NASA and SpaceX under the Commercial Crew Program. The mission is called Crew-2 Mission.

The Crew missions aim to perform research operations in International Space Stations.

- Crew 1 Mission conducted microgravity studies at the ISS.
- Crew 2 Mission aims to conduct research on a series of Tissue Chips.

**10) B**

The Rushikulya river mouth is considered the second-biggest nesting site for Olive Ridley Turtles in India. The Gahirmatha marine sanctuary in Odisha is considered the world's largest nesting beach for Olive Ridley Turtles.

The mass nesting near the Rushikulya river mouth is likely to be missed in 2021. As the time for nesting is almost over. But this won't be the first time they won't come for mass nesting. In 2002, 2007, 2016 and 2019, the turtles had not shown up at Rushikulya.

**11) C**

A product patent ensures that the rights to the final product is protected, and anyone other than the patent holder can be restrained from manufacturing it during a specified period, even if they were to use a different process. A process patent enables any person other than the patent holder to manufacture the patented product by modifying certain processes in the manufacturing exercise

India moved from product patenting to process patenting in the 1970s, which enabled India to become a significant producer of generic drugs at global scale, and allowed companies like Cipla to provide Africa with anti-HIV drugs in the 1990s.

But due to obligations arising out of the TRIPS Agreement, India had to amend the Patents Act in 2005, and switch to a product patents regime across the pharma, chemicals, and biotech sectors.

**12) A****13) D**

- Focus: The point where the energy is released is called the focus of an earthquake. It is also called the Hypocenter.
- Epicenter: The energy waves travelling in different directions reach the surface. The point on the surface, nearest to the focus, is called the Epicentre.
- NCS works under Ministry of Earth Sciences

**14) D****15) D****16) D**

The Interpol has recently launched a mobile phone application (app) "ID-Art"

**ID-Art App**

- The app will help identify stolen cultural property, reduce smuggling and increase the possibility of recovering stolen works and artefacts.
- It enables users — from law enforcement agencies to the general public — to get mobile access to the Interpol database of stolen works of art, create an inventory of private art collections and report cultural sites that are potentially at risk, said the Interpol.
- It is available for both Android and Apple devices.
- The app’s users can immediately cross-check if an object is among the over 52,000 items registered as stolen in the Interpol’s “Stolen Works of Art” database.

**17) B**

**18) C**

- A five-judge Constitution Bench of the Supreme Court has unanimously declared a Maharashtra law which provides reservation benefits to the Maratha community, taking the quota limit in the State in excess of 50%, as unconstitutional.
- The Supreme Court also declared that only President can take decisions in declaring the Socially and Economically Backward Community.
- The 102nd Constitution Amendment Act had introduced Articles 338B and 342A in the Constitution. Article 338B gives constitutional status to the National Backward Classes Commission.
- Article 342A empowers the President to specify the socially and educationally backward communities in a State.

**19) A**

Following a crash-landing, liquids leaking from the aircraft, which are not yet burning, start evaporating, thereby resulting in forming an air-vapour mixture that is flammable or even highly explosive. In such cases, extinguishing foam is used preventively and the liquid is covered with a foam carpet as a vapour barrier. Airport fire brigades create a foam carpet in order to secure an emergency landing if the landing gear of an aircraft is not extended or is unstable. This is done in order to suppress sparking and burning of any aircraft metals due to friction with the runway surface. The International Civil Aviation Organization does not recommend foaming the runway in its Airport Services Manual, stating that the effectiveness of runway foaming is not fully substantiated by the real evidence of operational incident studies.

**20) C**