

Answers

1) C

Nanobodies are antibody fragments that are so simple that they can be produced by bacteria or yeast, which is less expensive. These are antibodies with a single variable domain located on a heavy chain, also known as VHH antibodies.

These are often seen as an alternative to conventional antibodies, and have significant differences in both production and use that influence their suitability.

2) C

Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system. A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger.

No participant can change or tamper with a transaction after it's been recorded to the shared ledger. If a transaction record includes an error, a new transaction must be added to reverse the error, and both transactions are then visible.

The blockchains are programmable. To speed transactions, a set of rules called a smart contract is stored on the blockchain and executed automatically.

3) D

4) A

DRDO has recently conducted the successful maiden launch of Akash-NG (New Generation) Missile from Integrated Test Range off the coast of Odisha

Akash-NG Missile

It is a new generation Surface to Air Missile meant for use by Indian Air Force with an aim of intercepting high maneuvering low Radar Cross Section (RCS) aerial threats. It weighs only half of the existing Akash missile and requires fewer ground systems.

The existing Akash missile has a range of 25 km, while the upgraded variant (NG) can strike targets at a distance of 50-70 km. The missile, already in service in the Indian military, has an indigenous content of 96%. The missile was inducted into the Indian Air Force in 2014 and in the army a year later.

5) A

A side scan sonar uses high-frequency sound pulses that are bounced off the sea floor to create an image of the sea floor morphology shape) and show differences in seabed texture and substrate types. Side scan may be used to conduct surveys for maritime archeology; in conjunction with seafloor samples, it is able to provide an understanding of the differences in material and texture type of the seabed surface.

Typical frequencies used in side scan sonar range from 100 to 500 kHz with higher frequencies producing a higher resolution image. The higher frequencies yield better resolution but less range.

Indian scientists will undertake a scientific expedition using side scan Sonar and Silo seismic survey to date the chain of corals and sediments forming the Ram Setu.

6) A

Foreign Direct Investment (FDI) is a major driver of economic growth and an important source of non-debt finance for the economic development of India. It is the primary sources of external capital as well as increased revenues for a country. It often results in the opening of factories in the country of investment, in which some local equipment be it materials or labour force, is utilised.

There is a difference between FDI and FPI (Foreign Portfolio Investments), wherein the investor purchases equity of foreign companies. FPI means only equity infusion, and does not imply the establishment of a lasting interest. FDI can be Greenfield, wherein an organisation creates a subsidiary concern in another country and builds its business operations there from the ground up.

Alternatively, FDI can be brownfield – wherein an organisation expands by way of cross-border mergers, acquisitions and joint ventures – by either leasing or purchasing existing facilities for its production.

During April to November, 2020, total FDI inflow of US\$ 58.37 billion has been received. It is the highest ever for first 8 months of a financial year and 22% higher as compared to first 8 months of 2019-20 (US\$ 47.67 billion).

7) C

The IEA was established in 1974, in the wake of the 1973-1974 oil crisis, to help its members respond to major oil supply disruptions, a role it continues to fulfill today. IEA's mandate has expanded over time to include tracking and analyzing global key energy trends, promoting sound energy policy, and fostering multinational energy technology cooperation. Statement 2 is correct. The IEA operates within the broader framework of the Organization for Economic Co-Operation and Development (OECD). A candidate country to the IEA must be a member country of the OECD. The IEA is made up of 30 member countries. In addition, thanks to its successful open door policy to emerging countries, the IEA family also includes eight association countries (including India). # The Framework for Strategic Partnership between the International Energy Agency (IEA) members and the Government of India was signed on 27th January, 2021 to strengthen mutual trust and cooperation & enhance global energy security, stability and sustainability.

8) B

The India Justice Report (IJR) is an initiative of Tata Trusts in collaboration with Centre for Social Justice, Common Cause, Commonwealth Human Rights Initiative, DAKSH, TISS-Prayas, Vidhi Centre for Legal Policy and How India Lives. The maiden IJR was announced in 2019. Statement 2 is correct. The Report highlights stark conclusions, when aggregated for an all-India picture. Women comprise only 29% of judges in India. Two-thirds of the country's prisoners are yet to be convicted. In the last 25 years, since 1995, only 1.5 crore people have received legal aid, though 80% of the country's population is entitled to. Statement 3 is correct. The second edition of the India Justice Report, India's only ranking of states on delivery of Justice to people, ranks Maharashtra once again at the top of the 18 Large and Mid-sized states (with population of over one crore each), followed by Tamil Nadu (2019: 3rd), Telangana (2019: 11th) Punjab (2019: 4th) and Kerala (2019: 2nd). The list of seven Small States (population less than one crore each) was topped by Tripura (2019: 7th), followed by Sikkim (2019: 2nd) and Goa (2019: 3rd).

9) C

The National Statistical Office (NSO), Ministry of Statistics and Program Implementation prepares national accounts as well as publishes annual estimates of national product, government and private consumption expenditure, capital formation, savings, estimates of capital stock and consumption of fixed capital, as also the state level gross capital formation of

supra-regional sectors and prepares comparable estimates of State Domestic Product (SDP) at current prices.

Year	Share in GVA at current prices (in %)			
	Primary	Secondary	Tertiary	All
2011-12	21.7	29.3	49.0	100.0
2012-13	21.3	28.7	50.0	100.0
2013-14	21.4	27.9	50.6	100.0
2014-15	20.9	27.3	51.8	100.0
2015-16	20.1	27.6	52.3	100.0
2016-17	20.4	27.0	52.6	100.0
2017-18	20.4	27.0	52.5	100.0
2018-19	19.8	26.8	53.4	100.0
2019-20	20.3	24.7	55.0	100.0

10) A

Minister for Environment, Forest and Climate Change, Shri Prakash Javadekar and Ms Barbara Pompili, the French Minister for Ecological Transition jointly launched the Indo-French Year of the Environment in New Delhi recently.

Indo-French Year of the Environment

2021 was designated as the Indo-French Year of the Environment. The basic objective is to strengthen Indo-French cooperation in sustainable development, increase the effectiveness of actions in favor of global environment protection and give them greater visibility.

The Indo-French Year of the Environment over the period 2021-2022 would be based on five main themes:

- Environmental protection
- Climate change
- Biodiversity conservation
- Sustainable urban development
- Development of renewable energies and energy efficiency

It is also a platform for engaging in discussions on critical areas of collaboration relating to environment and allied areas.

11) C

The National Board for Wildlife (NBWL) has recently recommended the de-notification of Galathea Bay Sanctuary, after local authorities submitted a proposal for it to the Union environment ministry citing an international shipment project. It has suggested the implementation of a mitigation plan to facilitate nesting of turtles as well as connectivity between the Galathea river and the Bay of Bengal. Great Nicobar Island and Little Andaman Island host the largest nesting population of leatherback turtles in the central or northern Indian Ocean.

Leatherback Turtles

- They are named for their shell, which is leather-like rather than hard, like other turtles.
- They are extremely vulnerable to temperature extremes.
- It is the only species without scales and a hard shell.
- They are the largest sea turtle species and also one of the most migratory, crossing both the Atlantic and Pacific Oceans.
- Some of the turtles can swim over 10,000 miles a year between nesting and foraging grounds.
- Pacific leatherbacks migrate from nesting beaches in the Coral Triangle all the way to the California coast to feed on the abundant jellyfish every summer and fall.
- Although their distribution is wide, numbers of leatherback turtles have seriously declined during the last century as a result of intense egg collection and fisheries by catch.
- Globally, leatherback status according to IUCN is listed as Vulnerable, but many subpopulations (such as in the Pacific and Southwest Atlantic) are Critically Endangered.

12) A

Recently, an NGO based in Germany 'German watch' has released the Global Climate Risk Index (CRI) 2021.

The CRI analyses quantified impacts of extreme weather events both in terms of the fatalities and economic losses.

13) A

Under the Foreign Contribution (Regulation) Act, 2010, certain persons are prohibited to accept any foreign contribution. These include: election candidates, editor or publisher of a newspaper, judges, government servants, members of any legislature, and political parties, among others.

The FCRA Amendment Act 2020 adds public servants (as defined under the Indian Penal Code) to this list. Public servant includes any person who is in service or pay of the government, or remunerated by the government for the performance of any public duty.

The FCRA Amendment Act, 2020 states that foreign contribution must be received only in an account designated by the bank as "FCRA account" in such branch of the State Bank of India, New Delhi, as notified by the central government.

No funds other than the foreign contribution should be received or deposited in this account. The person may open another FCRA account in any scheduled bank of their choice for keeping or utilising the received contribution.

14) B

The objective of the Strengthening Teaching-Learning and Results for States (STARS) Operation for India is to improve the quality and governance of school education in selected states.

The project covers 6 States viz Himachal Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Kerala and Odisha. The identified States will be supported for various interventions for improving the quality of education.

The total project cost of STARS project is Rs 5718 crore with the financial support of World Bank amounting to US \$ 500 million (approximately Rs. 3700 crore) and rest coming as State share from the participating States, over a period of 5 years.

STARS project would be implemented as a new Centrally Sponsored Scheme under Department of School Education and Literacy (DoSEL), MOE.

15) C

India is the world's largest exporter of chili and turmeric, the exports of which have recorded a steady progress, over the years. During 2019-20, India exported 4,84,000 tonnes of chili and chili products valued at Rs.6211.70 crores which contributed to more than 40 per cent in volume and 29 per cent in value of India's total spice exports.

Turmeric held a share of 11 per cent in volume and 6 per cent in value of the export basket, with an export of 1,36,000 tonnes valued at Rs.1216.40 crores.

Spices Board India

It is the flagship organization for the development and worldwide promotion of Indian spices. It is one of the five Commodity Boards functioning under the Ministry of Commerce & Industry.

It is an autonomous body responsible for the export promotion of the 52 scheduled spices and development of Cardamom (Small & Large). The Board is an international link between the Indian exporters and the importers abroad.

16) D

17) B

The Future Investment Initiative is hosted by the Public Investment Fund of Saudi Arabia. It is an annual investment forum held in Riyadh, Saudi Arabia, to discuss trends in the world economy and investment environment. Union Minister for Health and Family Welfare recently addressed the 4th edition of the Future Investment Initiative Forum. The purpose of the forum being hosted in Riyadh was to find solutions on how business and government can expand access to healthcare, train healthcare workers, remove regulatory barriers and encourage investment in advanced health technologies.

18) C

Protection of Children from Sexual Offences Act, 2012 defines a child as any person below eighteen years of age, and defines different forms of sexual abuse, including penetrative and non-penetrative assault, as well as sexual harassment and pornography.

People who traffic children for sexual purposes are also punishable under the provisions relating to abetment in the said Act. The said Act prescribes stringent punishment graded as per the gravity of the offence, with a maximum term of rigorous imprisonment for life, and fine.

The said Act provides for Special Courts that conduct the trial in-camera and without revealing the identity of the child, in a child-friendly manner. The child is not to be called repeatedly to testify in court and may testify through video-link rather than in a courtroom. The said Act stipulates that a case of child sexual abuse must be disposed of within one year from the date the offence is reported.

19) B

DNA is made up of molecules called nucleotides. Each nucleotide contains a phosphate group, a sugar group and a nitrogen base. The four types of nitrogen bases are adenine (A), thymine (T), guanine (G) and cytosine (C). The order of these bases is what determines DNA's instructions, or genetic code.

A mutation is an alteration in the nucleotide sequence of the genome of an organism. A silent mutation is a change in the sequence of nucleotide bases which constitutes DNA, without a subsequent change in the amino acid or the function of the overall protein.

20) D

India has unveiled a new draft 'Arctic' policy that and is committed to expanding scientific research, "sustainable tourism" and mineral oil and gas exploration in the Arctic region. The draft policy discusses the importance of understanding the impact of climate change in the Arctic region and its connection with India's monsoon, which is crucial for its economy.

India also proposes to focus on vast resources of the Arctic region including hydrocarbons, minerals and renewable power to ensure its energy security. The policy is cautious in framing its involvement in the Arctic as "common heritage of mankind" but its priorities are similar to that of other non-Arctic states.

