



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA CURRENT AFFAIRS QUIZ

DECEMBER 2020

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1. Economy

1. Consider the following statements regarding recent trend in India's external debt.
1. US dollar denominated debt continued to be the largest component of India's external debt.
 2. Non-resident deposits remained the largest component of the external debt.
 3. The long-term debt constitutes more than twice the short-term debt in total external debt.

Which of the above statements is/are correct?

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

Solution: c)

India's external debt stood at USD 554.5 billion at end-June, recording a decrease of USD 3.9 billion over its level at the end of March 2020. Further, the external debt to GDP ratio increased to 21.8 per cent at June-end 2020 from 20.6 per cent as on March 31.

As per the data, **commercial borrowings remained the largest component of external debt**, with a share of 38.1 per cent, **followed by non-resident deposits** (23.9 per cent) and short-term trade credit (18.2 per cent).

The share of **short-term debt in total external debt declined to 18.9 per cent** as on June 30 from 19.1 per cent at end-March. The Reserve Bank said the **US dollar denominated debt remained the largest component of India's external debt**, with a share of 53.9 per cent at end-June followed by the Indian rupee (31.6 per cent), yen (5.7 per cent), SDR (4.5 per cent) and the euro (3.5 per cent).

Source

2. Consider the following statements regarding Anti-Dumping Duty.
1. An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
 2. In India, Directorate General of Trade Remedies (DGTR), under the Ministry of Commerce & Industry conducts anti-dumping investigations.

Which of the above statements is/are correct?

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

Solution: c)

An anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value. Dumping is a process wherein a company exports a product at a price that is significantly lower than the price it normally charges in its home (or its domestic) market.

Directorate General of Trade Remedies (DGTR) conducts anti-dumping investigations, under the Customs Tariff Act, 1975 and the rules made thereunder, on the basis of a duly substantiated application filed by the domestic industry alleging dumping of goods into the country causing injury to the domestic industry. The basic intent of anti-dumping measures is to eliminate injury caused to the domestic industry by the unfair trade practice of dumping and to create a level playing field for the domestic industry.

Source

3. Teaser loan, sometimes seen in news means

- a) Loans which charge lower rates of interest in the first few years after which the rates are increased.
- b) Loans provided to weaker sections of the society with interest rate below the repo rate.
- c) Loans provided to high net worth individuals.
- d) None of the above

Solution: a)

Teaser loans are those which charge comparatively lower rates of interest in the first few years after which the rates are increased.

4. Consider the following statements.

- 1. Recession is defined as a fall in the overall economic activity for two consecutive quarters accompanied by a decline in income, sales and employment.
- 2. India's economy has now formally entered into a technical recession.
- 3. Gross Value Added (GVA) data provides a measure of national income by looking at the value-added by different sectors of the economy.

Which of the above statements is/are correct?

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

Solution: d)

According to the official data released recently, **India's gross domestic product (GDP) contracted by 7.5% during the July, August, and September quarter**. This means in Q2 of 2020-21 India produced 7.5% fewer goods and services when compared to what India produced in Q2 of 2019-20.

In the process, **India's economy has now formally entered into a technical recession because** — along with the nearly 24% contraction in Q1 — India has had **two consecutive quarters when GDP growth rate has declined**.

Recession is defined as a fall in the overall economic activity for two consecutive quarters (six months) accompanied by a decline in income, sales and employment.

Gross Value Added (GVA) data provides a measure of national income by looking at the value-added by different sectors of the economy in that quarter. If you want to compare which parts of the economy improved production and incomes from one quarter to another, the GVA is more apt.

[Source](#)

5. Zombie firms, sometimes seen in news implies

- a) Firms which earn sufficient profit to finance their debts
- b) Firms which create more employment opportunities
- c) Firms which are not able to cover their debt-servicing costs with current earnings.
- d) Firms supported by the government without taxing on its profits

Solution: c)

Former Chief Economic Advisor Arvind Subramanian said India had moved from socialism with limited entry (for firms) to capitalism without exit. Alas, capitalism without exit is zombieland, full of companies neither dead nor alive.

In the financial world, companies on life support are called "**Zombies**": **Those firms which are not even able to cover their debt-servicing costs with current earnings**. They are in bad shape, and probably should have gone out of business already. Yet, they are being kept alive.

6. Which of the following are the functions of Banks Board Bureau (BBB)?
1. Improve the governance of Public Sector Banks.
 2. Advise the government on top-level bank appointments.
 3. Provide adequate capital to the Public Sector Banks to deal with bad loans.

Select the correct answer code:

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

Solution: b)

Banks Board Bureau (BBB) was set up in February 2016 as an autonomous body— based on the recommendations of the RBI-appointed PJ Nayak Committee to **improve governance of Public Sector Banks (PSBs)**.

It was the part of Indradhanush Plan of government.

It had replaced Appointments Board of Government.

Its broad agenda is to improve governance at state-owned lenders. Its mandate also involved advising the government on top-level bank appointments and assisting banks with capital-raising plans as well as strategies to deal with bad loans.

It guides banks on mergers and consolidations and governance issues to address bad loans problem among other issues.

[Source](#)

7. Consider the following statements regarding Special economic zones (SEZs) in India.
1. The SEZ Act 2005 envisages key role for the State Governments in Export Promotion and creation of related infrastructure in SEZs.
 2. All laws of India are applicable in SEZs unless specifically exempted as per the SEZ Act/ Rules.
 3. SEZs are exempted from Minimum Alternate tax (MAT).

Which of the above statements is/are correct?

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

Solution: c)

A special economic zone (SEZ) is an area in which the business and trade laws are different from the rest of the country. SEZs are located within a country's national borders, and their aims include increased trade balance, employment, increased investment, job creation and effective administration.

The main objectives of the SEZ Scheme is generation of additional economic activity, promotion of exports of goods and services, promotion of investment from domestic and foreign sources, creation of employment opportunities along with the development of infrastructure facilities. **All laws of India are applicable in SEZs unless specifically exempted as per the SEZ Act/ Rules.** Sales in the Domestic Tariff Area from the SEZ units are treated as if the goods are being imported and are subject to payment of applicable customs duties.

SEZs were introduced to India in 2000, following the already successful SEZ model used in China. Prior to their introduction, India relied on export processing zones (EPZs) which failed to make an impact on foreign investors. By 2005, all EPZs had been converted to SEZs.

The SEZ Act 2005 envisages key role for the State Governments in Export Promotion and creation of related infrastructure.

Exemption from Minimum Alternate tax (MAT) was withdrawn w.e.f. 1.4.2012.

Source Source

8. Consider the following statements regarding Negative-yield bonds.

1. These are debt instruments that offer to pay the investor a maturity amount lower than the purchase price of the bond.
2. These are generally issued by central banks or governments.
3. Negative-yield bonds attract investments during times of stress and uncertainty as investors look to protect their capital from significant erosion.

Which of the above statements is/are correct?

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

Solution: d)

Recently China sold negative-yield debt for the first time, and this saw a high demand from investors across Europe. As yields in Europe are even lower, there was a huge demand for the 4-billion-euro bonds issued by China. China's 5-year bond was priced with a yield of -0.152% , and the 10-year and 15-year securities with positive yields of 0.318% and 0.664% .

What are negative-yield bonds?

These are debt instruments that **offer to pay the investor a maturity amount lower than the purchase price of the bond**. These are generally issued by central banks or governments, and investors pay interest to the borrower to keep their money with them.

Why do investors buy them?

Negative-yield bonds attract investments during times of stress and uncertainty as investors look to protect their capital from significant erosion. At a time when the world is battling the Covid-19 pandemic and interest rates in developed markets across Europe are much lower, investors are looking for relatively better-yielding debt instruments to safeguard their interests.

Source

9. National Company Law Appellate Tribunal (NCLAT) hears appeals from the orders of

1. National Company Law Tribunal (NCLT)
2. Insolvency and Bankruptcy Board of India
3. Competition Commission of India (CCI)

Select the correct answer code:

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

Solution: d)

The **National Company Law Appellate Tribunal (NCLAT)** is a tribunal which was formed by the Central Government of India under Section 410 of the Companies Act, 2013. The tribunal is responsible for hearing appeals from the orders of **National Company Law Tribunal (NCLT)**, starting on 1 June 2016.

The tribunal also hears appeals from orders issued by the **Insolvency and Bankruptcy Board of India** under Section 202 and Section 211 of IBC. It also hears appeals from any direction issued, decision made, or order passed by the **Competition Commission of India (CCI)**.

10. Geographical Indication tags are typically given for

1. Agricultural products
2. Foodstuffs
3. Handicrafts
4. Industrial products
5. Wines and spirit drinks

Select the correct answer code:

- a) 1, 2, 3, 4
- b) 1, 2, 3, 5
- c) 1, 2, 3, 4, 5
- d) 1, 2, 4, 5

Solution: c)

- The World Intellectual Property Organisation defines a GI as “a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin”.
- **GIs are typically used for agricultural products, foodstuffs, handicrafts, industrial products, wines and spirit drinks.** Darjeeling tea, Kullu shawl, Mysore agarbathi, champagne (France), Swiss watches etc are some of its examples.
- Internationally, GIs are covered as an element of intellectual property rights under the Paris Convention for the Protection of Industrial Property. They are also covered under the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

[Source](#)

11. Consider the following statements.

1. Disinvestment involves Selling minority shares of Public Enterprises, to public or private entity.
2. When the government sells majority shares in a public sector entity, that is strategic disinvestment.
3. Under strategic disinvestment, the government transfers the ownership and control of a public sector entity to another public entity and the private sector is not involved here.

Which of the above statements is/are correct?

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

Solution: b)

What is strategic disinvestment or strategic sale?

When the government decides to transfer the ownership and control of a public sector entity to some other entity, either private or public, the process is called strategic disinvestment.

What is the difference between strategic disinvestment/sale and disinvestment

Selling minority shares of Public Enterprises, to another entity be it public or private is disinvestment. In this the government retains ownership of the enterprise. On the other hand, when the government sells majority shares in an enterprise, that is strategic disinvestment/sale. Here, the government gives up the ownership of the entity as well.

[Source](#)

12. Which of the following are considered as tax revenue for the Union Government?

1. Personal income tax
2. Excise Duty
3. Dividends on investments
4. Income through Spectrum Auctions

Select the correct answer code:

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- a) 1, 2, 3
- b) 1, 3, 4
- c) 1, 2
- d) 1, 2, 4

Solution: c)

Tax revenues consist of the proceeds of taxes and other duties levied by the central government. Tax revenues comprise of direct taxes – which fall directly on individuals (personal income tax) and firms (corporation tax), and indirect taxes like excise taxes (duties levied on goods produced within the country), customs duties (taxes imposed on goods imported into and exported out of India) and service tax.

Non-tax revenue of the central government mainly consists of interest receipts (on account of loans by the central government which constitutes the single largest item of non-tax revenue), **dividends and profits on investments** made by the government, fees and other receipts for services rendered by the government. Cash grants-in-aid from foreign countries and international organisations are also included.

Income generated by the Central Government through the spectrum auctions is part of non-tax revenue.

13. Consider the following statements regarding Municipal Bonds.

1. A municipal bond is a kind of debt instrument where investors offer loans to local governments.
2. They are issued by civic bodies for specific projects and usually have a tenure of 10 years.
3. In India, Municipal bonds were introduced for the first time under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme.

Which of the above statements is/are correct?

- a) 1 only
- b) 1, 2
- b) 1, 3
- c) 1, 2, 3

Solution: b)

A municipal bond is a kind of debt instrument where investors offer loans to local governments. They are issued by civic bodies for specific projects and usually have a 10-year tenure. The ULB pays the annual interest on the bonds to the investor at the decided rate.

Bonds are issued to institutional and high networth individuals. The face value of each instrument slot of a municipal bond is a minimum of Rs 10 lakh. It can be subscribed to (purchased) by a single investor or multiple investors.

According to officials, under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme, urban local bodies (ULBs) are encouraged to tap the bond market.

[Source](#)

14. Consider the following statements regarding London Interbank Offered Rate (LIBOR).

1. The London Interbank Offered Rate (LIBOR) is a benchmark interest rate at which major global banks lend to one another in the international interbank market for short-term loans.
2. It is managed by *European Central Bank* (ECB).
3. LIBOR will not be published any more after end-2021.

Which of the above statements is/are correct?

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

Solution: b)

The London Interbank Offered Rate (LIBOR) is a benchmark interest rate at which major global banks lend to one another in the international interbank market for short-term loans.

LIBOR, which stands for London Interbank Offered Rate, serves as a globally accepted key benchmark interest rate that indicates borrowing costs between banks. The rate is calculated and published each day by the Intercontinental Exchange (ICE), but due to recent scandals and questions around its validity as a benchmark rate, it is being phased out.

Libor will not be published any more after end-2021, and market participants are strongly encouraged to transition to other risk-free rates.

[Source](#)

15. Consider the following statements regarding zero-coupon bond.

1. A zero-coupon bond is a debt security that not pay interest but instead trades at a deep discount, rendering a profit at maturity, when the bond is redeemed for its full-face value.

2. These are special types of bonds issued only by the Central government specifically to a particular institution.

Which of the above statements is/are correct?

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

Solution: a)

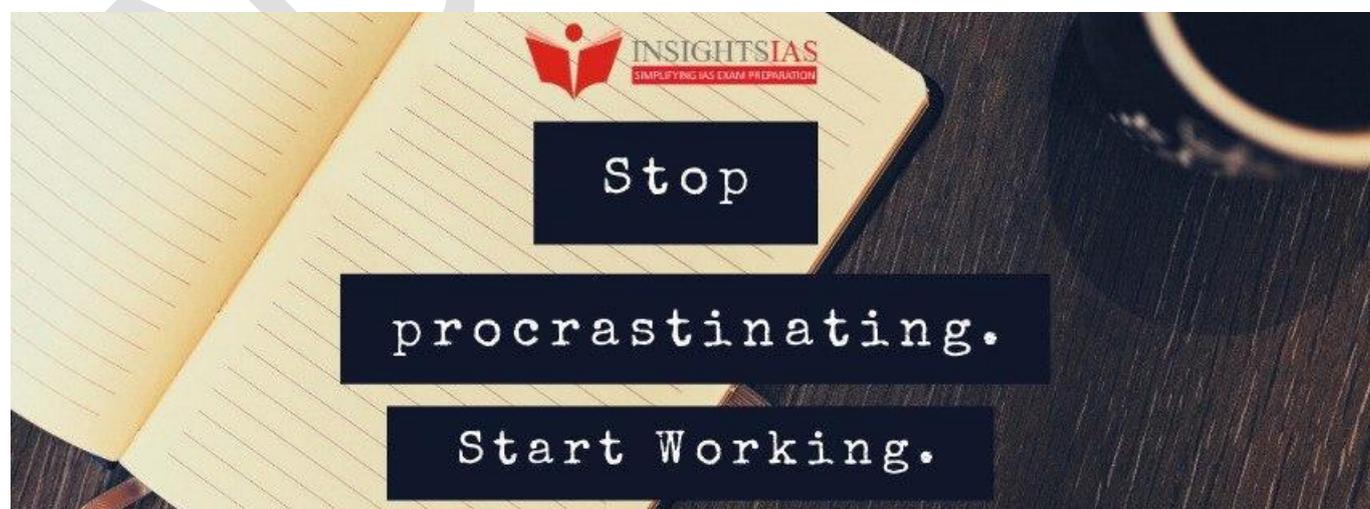
A zero-coupon bond is a debt security that does not pay interest but instead trades at a deep discount, rendering a profit at maturity, when the bond is redeemed for its full-face value.

It does not make periodic interest payments or have so-called coupons, hence the term zero coupon bond. When the bond reaches maturity, its investor receives its par (or face) value.

Zero coupon bonds by private companies are normally issued at discount.

[Source](#)

[Source](#)



2. Ecology and Environment

1. Consider the following statements regarding Cyclones.

1. In the absence of warm sea surface conditions, cyclone will not intensify further while at sea.
2. The conditions favourable for the formation of consecutive cyclones in the Indian Ocean requires a gap of at least 1 week.
3. Upwelling is the process in which cooler waters from lower ocean surfaces are pushed towards upper ocean surfaces.

Which of the above statements is/are correct?

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

Solution: b)

Cyclone Burevi is likely to cross between Kanyakumari and Pamban.

In exactly a week, another cyclone will brush Tamil Nadu coast, or its southernmost tip, to be precise. This is the **third cyclone formed within the last 10 days in the Arabian Sea and the Bay of Bengal, put together.**

Unstable sea conditions, in the southwest region of Bay of Bengal, continue due to the recent crossing of Nivar. The overall sea conditions currently remain disturbed.

This is why meteorologists say there is a high possibility that Cyclone Burevi would not strengthen beyond the intensity of a cyclonic storm.

“Due to upwelling caused by Nivar, Cyclone Burevi will have limited intensity,”

When such consecutive systems develop in the same region of the ocean, the predecessor system leads to upwelling — the process in which cooler waters from lower ocean surfaces are pushed towards upper ocean surfaces.

In the absence of warm sea surface conditions, any cyclone, in this case Burevi, will not get enough fuel to intensify further while at sea.

[Source](#)

2. Consider the following statements.

1. As trees grow, they incorporate information about the environmental conditions they are living in in their annual growth rings.
2. Tree rings grow wider in years when soil moisture is high.

Which of the above statements is/are correct?

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

Solution: c)

Tree rings grow wider in years when soil moisture is high. Indirectly, wider rings reflect more rainfall and higher river runoff.

As trees grow, they incorporate information about the environmental conditions they are living in in their annual growth rings. Trees in the region grow more and put on wide rings in wet monsoon years. Conversely in dry monsoon years (or droughts) they grow less and put on narrow rings.

[Source](#)

3. Consider the following statements regarding Greater one-horned rhinoceros.
1. Greater one-horned rhinoceros is native to the Indian subcontinent.
 2. It is listed as Vulnerable on the IUCN Red List.
 3. Kaziranga National Park has the highest density of Greater one-horned rhinos in the world.

Which of the above statements is/are correct?

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

Solution: a)

Greater one-horned rhinoceros is a rhinoceros species native to the Indian subcontinent. It is listed as Vulnerable on the IUCN Red List

Pobitora is known for the highest density of Indian one-horned rhinos in the world along with Kaziranga National Park, the shelter for two thirds of the world's great one-horned rhinos.

[Source](#)

4. In India, which of the following are considered as 'exotic wildlife species'
1. Animals named under Appendices I, II and III of the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora.
 2. Species from the Schedules of the Wild Life (Protection) Act, 1972.

Select the correct answer code:

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

Solution: a)

The Environment Ministry's wildlife division has introduced new rules to regulate the import and export of 'exotic wildlife species'.

Currently, it is the Directorate-General of Foreign Trade, Ministry of Commerce, that oversees such trade.

Under the new rules, **owners and possessors of such animals and birds must also register their stock with the Chief Wildlife Warden of their States.**

The advisory, issued recently, also says 'exotic wildlife species' will mean **animals named under Appendices I, II and III of the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora.** It will **not include species from the Schedules of the Wild Life (Protection) Act, 1972.**

[Source](#)

5. Consider the following statements regarding Wetlands.
1. In India, Wetlands are regulated under the *Environment (Protection) Rules, 1986.*
 2. Wetlands International is an independent, not-for-profit, global organisation that works to sustain and restore wetlands and their resources for people and biodiversity.

Which of the above statements is/are correct?

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

Solution: b)

Wetlands are regulated under the Wetlands (Conservation and Management) Rules, 2017. The 2010 version of the Rules provided for a Central Wetland Regulatory Authority; the 2017 Rules replace it with state-level bodies and created a National Wetland Committee, which functions in an advisory role. The newer regulations removed some items from the definition of “wetlands” including backwaters, lagoon, creeks, and estuaries.

Wetlands International is a global organisation that works to sustain and restore wetlands and their resources for people and biodiversity. It is an independent, not-for-profit, global organisation, supported by government and NGO membership from around the world.

6. Consider the following statements regarding Global Tiger Initiative (GTI).

1. Global Tiger Initiative (GTI) is a global alliance of governments, international organizations, civil society, the conservation and scientific communities and the private sector, with the aim of working together to save wild tigers from extinction.

2. The initiative is led by all tiger range countries (TRCs).

3. The scope of GTI also includes Asiatic Lions.

4. World Bank is one of the founding partners of GTI.

Which of the above statements is/are correct?

a) 1, 2, 3, 4

b) 1, 2, 4

c) 1, 3, 4

d) 1, 4

Solution: b)

The Global Tiger Initiative (GTI) was launched in 2008 as a global alliance of governments, international organizations, civil society, the conservation and scientific communities and the private sector, with the aim of working together to save wild tigers from extinction. In 2013, the scope was broadened to include Snow Leopards.

The GTI’s founding partners included the **World Bank**, the Global Environment Facility (GEF), the Smithsonian Institution, Save the Tiger Fund, and International Tiger Coalition (representing more than 40 non-government organizations). The **initiative is led by the 13 tiger range countries (TRCs).**

In November 2010, leaders of the tiger range countries (TRCs) assembled at an International Tiger Forum in St. Petersburg, Russia to adopt the **St. Petersburg Declaration on Tiger Conservation** and endorsed its implementation mechanism, called the **Global Tiger Recovery Program**. Their overarching goal was to **double the number of wild tigers** across their geographical area from about 3,200 to more than 7,000 by 2022.

[Source](#)

7. Consider the following statements.

1. Northern Lights, also known as aurora borealis, are witnessed only in the polar regions.

2. Auroras occur when charged particles ejected from the Sun’s surface called the solar wind enter the Earth’s atmosphere.

3. Solar flares can hamper flight operations, power grids and space exploration programmes.

Which of the above statements is/are correct?

a) 1, 2

b) 1, 3

c) 2, 3

d) 1, 2, 3

Solution: c)

Northern Lights, also known as aurora borealis, are usually witnessed far up in the polar regions or the high latitude regions of Europe, like in Norway. But, **they could be visible in regions that are more to the south, such as in the northern parts of Illinois and Pennsylvania in the US.**

This is happening due to a solar flare, which emerged from a Sunspot. The flare is accompanied by a Coronal Mass Ejection (CME) — a large bubble of radiation and particles emitted by the Sun that explodes into space at high speed.

What causes an aurora?

Auroras occur when charged particles ejected from the Sun's surface — called the solar wind — enter the Earth's atmosphere. While flowing toward Earth, the fast-moving solar wind carries with it the Sun's magnetic field, which disrupts the magnetosphere — the region of space around Earth in which the magnetic field of our planet is dominant.

When the Sun's magnetic field approaches Earth, the protective magnetic field radiating from our planet's poles deflects the former, thus shielding life on Earth. However, as this happens, the protective fields couple together to form funnels, through which charged solar wind particles are able to stream down to the poles.

At the north and south poles, the charged particles interact with different gases in the atmosphere, causing a display of light in the sky. This display, known as an aurora, is seen from the Earth's high latitude regions (called the auroral oval), and is active all year round.

Generally, the auroral oval is confined to the polar regions. But occasionally, the oval expands, and the lights become visible at lower latitudes. This happens during periods of high solar activity, such as the arrival of solar storms.

Solar activities include solar flares, solar energetic particles, high-speed solar wind and Coronal Mass Ejections (CME). These influence the space weather which originates from the Sun.

Solar flares can typically affect space-dependent operations like Global Positioning Systems (GPS), radio and satellite communications, besides hampering flight operations, power grids and space exploration programmes.

[Source](#)

8. Which of the following states in North-East India have Tiger Reserves.

1. Assam
2. Nagaland
3. Arunachal Pradesh
4. Mizoram
5. Manipur

Select the correct answer code:

- a) 1, 3, 4
- b) 1, 2, 3, 4
- c) 1, 3, 4, 5
- d) 1, 2, 3, 4, 5

Solution: a)

Only 3 states in North-East India have Tiger Reserves. They are in Assam, Arunachal Pradesh and Mizoram.

[Source](#)

9. Consider the following statements regarding Coalbed methane (CBM).

1. Coalbed methane like Shale gas is extracted directly from the rock that is the source of the gas.
2. CBM can be used for power generation, as compressed natural gas (CNG) auto fuel and as feedstock for fertilisers.

Which of the above statements is/are correct?

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

Solution: c)

Coalbed methane (CBM):

CBM, like shale gas, is extracted from what are known as unconventional gas reservoirs — where gas is extracted directly from the rock that is the source of the gas (shale in case of shale gas and coal in case of CBM).

The methane is held underground within the coal and is extracted by drilling into the coal seam and removing the groundwater. The resulting drop in pressure causes the methane to be released from the coal.

According to the Central Mine Planning and Design Institute (CMPDI), **CBM can be used for power generation, as compressed natural gas (CNG) auto fuel, as feedstock for fertilisers**, industrial uses such as in cement production, rolling mills, steel plants, and for methanol production.

[Source](#)

10. The minimum or night time temperature in New Delhi dropped to 4.1 degrees Celsius recently. Which of the following factors can lead to a dip in the temperature in Delhi and surrounding areas?

1. Snowfall in the Western Himalayan range
2. Active Western Disturbances
3. Intensive cloud cover
4. Active La Niña climate pattern

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 1, 2, 4
- d) 1, 2, 3, 4

Solution: c)

The minimum or night time temperature in New Delhi dropped to 4.1 degrees Celsius on Tuesday, the lowest during the season this year. The dip was five degrees below the normal temperature for this time of the year, according to the India Meteorological Department (IMD).

What is causing the dip in Delhi's temperature?

There has been a significant amount of **snowfall over the past few days in states falling in the western Himalayan range** — Jammu & Kashmir, Himachal Pradesh and Uttarakhand — under the influence of a Western Disturbance.

In winters, whenever an **active Western Disturbance** passes through the western Himalayan region, it leads to a dip in temperatures across northwest India.

A Western Disturbance, labelled as an extra-tropical storm originating in the Mediterranean, is an area of low pressure that brings sudden showers, snow and fog in northwest India.

The **lack of cloud cover** also leads to higher radiation from the Earth's surface into the atmosphere at night time, which also cools the ground.

Moreover, under the influence of an **active La Niña climate pattern**, temperatures across the globe have been dipping.

The maximum or day time temperature has also dipped in Delhi from 29 degrees Celsius on December 10 to 19.4 degrees Celsius on Monday.

The IMD has forecast cold day and cold wave conditions in some parts of the city for the next three days. A cold day is when the maximum temperature dips 4.5 degrees Celsius below normal temperature — which has been set based on climatological data of 30 years between 1981 and 2010. Cold wave is when the minimum temperature dips to 10 degrees Celsius or less and the departure from normal temperature is 4.5 degrees Celsius or lower.

[Source](#)

11. Consider the following statements regarding Himalayan serow, recently seen in news
1. Himalayan serow is described as resembling a cross between a goat, a donkey, a cow, and a pig.
 2. It is restricted to the Himalayan region.
 3. It is listed under Schedule V of The Wildlife Protection Act, 1972.

Which of the above statements is/are correct?

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

Solution: a)

A Himalayan serow has been sighted for the first time in the Himalayan cold desert region. The animal was spotted by locals and wildlife officials at a riverside rocky wall near Hurling village in Spiti, Himachal Pradesh.

This is the first recorded human sighting of the serow in Himachal Pradesh. The animal has been spotted a few times earlier in the state, but that has always been through camera traps.

Spiti lies in the cold mountain desert region of the western Himalaya, and its valley floor has an average elevation of 4,270 metres above sea level.

Serows are generally not found at this altitude, and never before has a serow been seen in the Himalayan cold desert. Wildlife officials believe this particular animal may have strayed into the Spiti valley from the Rupi Bhaba Wildlife Sanctuary in adjoining Kinnaur.

A biologist has described a **Himalayan serow as resembling a cross between a goat, a donkey, a cow, and a pig**. It's a medium-sized mammal with a large head, thick neck, short limbs, long, mule-like ears, and a coat of dark hair.

There are several species of serows, and all of them are found in Asia. **The Himalayan serow, or Capricornis sumatraensis thar, is restricted to the Himalayan region.**

According to the International Union for Conservation of Nature (IUCN), Himalayan serows have experienced significant declines in population size, range size and habitat in the last decade, and this is expected to continue due to intensive human impact.

Previously assessed as 'near threatened', the Himalayan serow is now been categorised as '**vulnerable**' in the **IUCN Red List of Threatened Species**.

It is listed under **Schedule I of The Wildlife Protection Act, 1972**, which provides absolute protection.



[Source](#)

12. Consider the following statements regarding Meteor shower.

1. A series of meteorites, when encountered at once, is termed a meteor shower.
2. Meteor showers are witnessed when Earth passes through the trail of debris left behind by a comet or an asteroid.
3. According to NASA, meteor shower is a very rare event which happens once in 100 years.

Which of the above statements is/are correct?

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

Solution: c)

The Geminids meteor showers are unique because their origin does not lie in a comet, but what is believed to be an asteroid or an extinct comet.

The Geminids meteor shower, believed to be the strongest of the year, is active from December 4-December 20.

Soon after the Geminids meteor shower, viewers in the northern hemisphere can expect to see the Ursids meteor shower.

What are meteor showers?

Meteors are bits of rock and ice that are ejected from comets as they manoeuvre around their orbits around the sun. For instance, the Orionids meteors emerge from the comet 1P/Halley and make their yearly presence in October. **Meteor showers are witnessed when Earth passes through the trail of debris left behind by a comet or an asteroid.**

When a meteor reaches the Earth, it is called a meteorite and **a series of meteorites, when encountered at once, is termed a meteor shower.** According to NASA, **over 30 meteor showers occur annually and are observable from the Earth.**

Meteors are best visible on a cloudless night and when the Moon is not extremely bright. Chances of a successful viewing are higher from locations far away from the lights of cities. Generally, pollution makes viewing meteor showers from India difficult to view.

[Source](#)

13. Consider the following statements regarding 'Zombie fires' recently seen in news

1. A zombie fire is a fire that continues to burn underground and then reignites on the surface after a period of time.
2. It burrow deep in organic soils such as peat lands.
3. There are evidences of zombie fires scattered across the Arctic region.

Which of the above statements is/are correct?

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

Solution: d)

Dormant "zombie fires" are scattered across the Arctic region. A zombie fire is a fire that continues to burn underground and then reignites on the surface after a period of time. Embers deep in organic soils such as peat lands can spark into flames weeks, months and even years later.

Source

14. Consider the following statements regarding Keoladeo National Park.

1. Keoladeo National Park is a famous avifauna sanctuary that hosts thousands of birds, especially during the winter season.
2. It is a natural wetland and also a UNESCO World Heritage Site.
3. It is located in the middle of Central Asian migratory flyway.

Which of the above statements is/are correct?

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

Solution: b)

Keoladeo National Park formerly known as the Bharatpur Bird Sanctuary in Bharatpur, Rajasthan, is a famous **avifauna sanctuary that hosts thousands of birds, especially during the winter season. It is also a UNESCO World Heritage Site.**

It is a **man-made and man-managed wetland.**

Due to its strategic location in the **middle of Central Asian migratory flyway** and presence of water, large congregations of ducks, geese, coots, pelicans and waders arrive in the winter.

The park was the only known wintering site of the central population of the Siberian Crane, and also serves as a wintering area for other globally threatened species such as the Greater Spotted Eagle and Imperial Eagle.

Source

Source

15. Zero Mass Water, sometimes in news is related to

- a) Converting human waste into water and other by-products
- b) Purifying seawater using renewable energy
- c) Creating potable drinking water from the atmosphere
- d) Purifying rainwater for drinking

Solution: c)

The Arabian Desert scarcely seems like an ideal place to source drinking water. But an Arizona-based technology firm is doing just that, in what may be the first operation of its kind. Instead of drilling wells or purifying seawater, it will wring moisture from the air to create bottled water at a plant 20 kilometers (12 miles) from Dubai.

The company, Zero Mass Water, will use renewable energy instead of the fossil fuels that power the many desalination facilities in Dubai and the rest of the United Arab Emirates. The project could offer a model for other parched nations to produce drinking water in a more sustainable way and even spur agricultural breakthroughs to improve food security.

While **water-from-air technology** is used elsewhere, Zero Mass's operation stands out for its size and intention to bottle the water.

[Source](#)

16. Consider the following statements.

1. Climate Change Performance Index (CCPI) tracks countries' efforts to combat climate change and is published annually by UNEP.
2. UNFCCC can impose penalty if a country fails to meet Nationally Determined Contributions (NDCs) under the Paris Climate Pact.

Which of the above statements is/are correct?

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

Solution: d)

Published annually since 2005, the Climate Change Performance Index (CCPI) tracks countries' efforts to combat climate change. As an independent monitoring tool it aims to enhance transparency in international climate politics and enables comparison of climate protection efforts and progress made by individual countries. **Germanwatch, the NewClimate Institute and the Climate Action Network publish the index annually.**

If a country fails to meet its NDCs, there is no penalty.

[Source](#)

[Source](#)

17. Forest Carbon Partnership Facility (FCPF) and Forest Investment Program (FIP) are the initiatives by

- a) UN Environment
- b) World Bank
- c) United Nations Development Programme
- d) Food and Agriculture Organisation

Solution: b)

Forest Investment Programme (FIP) was established by the World Bank in 2009 for supporting sustainable forest management and reforestation activities, in line with REDD+ objectives.

Forest Carbon Partnership Facility (FCPF) is a World Bank programme and consists of a Readiness Fund and a Carbon Fund. The FCPF was created to assist developing countries to reduce emissions from deforestation and forest degradation, enhance and conserve forest carbon stocks, and sustainably manage forests (REDD+).

18. Apart from Teesta, India and Bangladesh have been engaged in discussions to share the water of which of these rivers?

1. Muhuri

2. Khowai
3. Gomti
4. Dharla

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4
- d) 1, 2, 3, 4

Solution: d)

The two countries have also had initial talks on water sharing for other peninsular rivers including the Monu, Muhuri, Khowai, Gomti, Dharla and Dudhkumar.

19. Which of the following rivers originate outside the Indian Territory?

1. Brahmaputra
2. Sutlej
3. Chenab
4. Ravi

Select the correct answer code:

- a) 1, 2
- b) 1, 3, 4
- c) 1, 2, 3
- d) 3, 4

Solution: a)

The source of the Sutlej is west of the catchment area of Lake Rakshastal in Tibet, as springs in an ephemeral stream.

Chenab river rises in the upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh.

Ravi river rises in the Bara Bhangal, District Kangra in Himachal Pradesh.

20. Consider the following statements.

1. Developing an inventory of exotic live species by India will ensure better compliance under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
2. Recently Supreme Court ordered an investigation and prosecution if one declared illegal acquisition or possession of exotic wildlife species.

Which of the above statements is/are correct?

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

Solution: a)

The **Supreme Court upheld an Allahabad High Court order granting immunity from investigation and prosecution if one declared illegal acquisition or possession of exotic wildlife species** between June and December. This was under a new amnesty scheme announced by the Centre.

The Ministry of Environment, Forest and Climate Change (MoEFCC) has come out with an advisory on a one-time voluntary disclosure scheme that allows owners of exotic live species that have been acquired illegally, or without documents, to declare their stock to the government between June and December 2020. With this scheme, the government aims to address the challenge of zoonotic diseases, **develop an inventory of exotic live species for**

better compliance under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and regulate their import.

[Source](#)

21. Consider the following statements.

1. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments to ensure that international trade in wild animals, birds and plants does not endanger them.
2. Directorate of Revenue Intelligence (DRI) enforces anti-smuggling laws in India.
3. Government launched **PARIVESH** portal for Affordable Credit and Interest Subvention Access.

Which of the above statements is/are correct?

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

Solution: a)

CITES is an international agreement between governments to ensure that international trade in wild animals, birds and plants does not endanger them. India is a member. Appendices I, II and III of CITES list 5,950 species as protected against over-exploitation through international trade. Many of these animals, such as iguanas, lemurs, civets, albino monkeys, coral snakes, tortoises, are popular as exotic pets in India.

The Directorate of Revenue Intelligence (DRI), which enforces anti-smuggling laws, says India has emerged as a big demand centre for exotic birds and animals with an increase in smuggling of endangered species from different parts of the world.

PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single-window Hub) is a Ministry of Environment, Forests and Climate Change initiative for single window clearances of Environment, Forests and Wildlife and Coastal Regulation Zone (CRZ) Clearances.

[Source](#)

22. Consider the following statements.

1. In the last two years, more than 50% of all the rice and wheat procured by government agencies came from three States – Punjab, Haryana and Madhya Pradesh.
2. The carbon footprint for Rice is higher than that of wheat.

Which of the above statements is/are incorrect?

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

Solution: d)

In the last two years, close to 45% of all the rice and wheat procured by government agencies came from just two States - Punjab (28.9%) and Haryana (15.9%). M.P. was a distant third at 10.4%.

The GHG emission from the production of 1 kg of rice is about 17 times higher than that to produce 1 kg of wheat. The carbon intensity of rice cultivation is also about 6 times higher than the maize and wheat cultivation.

[Source](#)

23. Consider the following statements regarding Conjunction related to Solar System.

1. Conjunction is the name given to any event where planets or asteroids appear to be very close together in the sky when viewed from the Earth.
2. Conjunction always coincides with the winter solstice or the summer solstice.

Which of the above statements is/are correct?

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

Solution: a)

After nearly 400 years, Saturn and Jupiter – the two largest planets in our solar system – were brought closest in the night sky by an astronomical event called the “great conjunction” and popularly referred to as the “Christmas Star”.

The event coincided with the winter solstice (shortest day of the year in terms of hours of sunlight received) in the Northern Hemisphere and summer solstice in the Southern Hemisphere.

A conjunction is not unique to Saturn and Jupiter however, it is the name given to **any event where planets or asteroids appear to be very close together in the sky when viewed from the Earth**. In June 2005 for instance, as a result of the “spectacular” conjunction, Mercury, Venus and Saturn appeared so close together in the sky that the patch of sky where the three planets were could be covered by a thumb. **Astronomers use the word “great” for the conjunction of Jupiter and Saturn because of the planets’ sizes.**

[Source](#)

24. Consider the following statements.

1. Maitri and Himadri are two Indian permanent stations in Antarctica.
2. National Centre for Polar and Ocean Research (NCPOR) is the nodal agency for India’s scientific expeditions in Antarctica and the Arctic.

Which of the above statements is/are correct?

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

Solution: b)

The two Indian permanent stations, **Maitri and Bharati are in Antarctica.**

National Centre for Polar and Ocean Research (NCPOR) is the nodal agency for India’s scientific expeditions in Antarctica and the Arctic.

[Source](#)

25. Consider the following statements regarding Ammonia.

1. Ammonia can be stored both in liquid and gaseous form.
2. Ammonia is highly soluble in water, and is found in soil and air.
3. It is naturally present in the human body and secreted by the kidneys to neutralise excess acid.
4. Ammonia is critical in the manufacturing of fertilizers, and is one of the largest-volume synthetic chemicals produced in the world.

Which of the above statements is/are correct?

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4

d) 1, 2, 3, 4

Solution: d)

Ammonia is stored for industrial use in liquid form under high pressure or in gaseous form at low temperature.

Ammonia, which is **highly soluble in water, is found in soil, air, and water**; it is **naturally present in the body and secreted by the kidneys to neutralise excess acid**. However, it is highly diluted when in the environment and does not affect the human body to a noticeable level.

Ammonia is critical in the manufacturing of fertilizers, and is one of the largest-volume synthetic chemicals produced in the world. More than 80 per cent of ammonia made is consumed in the manufacturing of fertilizer, and most of the remainder goes into the production of formaldehyde.

Source

26. Consider the following statements regarding Climate emergency declarations.

1. In declaring a climate emergency, a government admits that climate change exists and that the measures taken up to this point are not enough to limit the changes brought by it.
2. Climate Emergency Declarations are based on the guidelines of UNFCCC.
3. Recently India declared Climate Emergency.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 3 only
- d) None of the above

Solution: a)

A climate emergency declaration or declaring a climate emergency is an action taken by governments and scientists to acknowledge humanity is in a climate emergency. The first such declaration was made in December 2016. Since then over 1,800 local governments in 33 countries have made climate emergency declarations (as of December 2020).

In declaring a climate emergency, a government admits that climate change (or global warming) exists and that the measures taken up to this point are not enough to limit the changes brought by it. The decision stresses the need for the government and administration to devise measures that try and stop human-caused global warming.

There are no UNFCCC guidelines for declaring climate emergency and India has not yet declared climate emergency.

[Source](#)

27. Consider the following statements regarding Wetlands International.

1. Wetlands International is the only global not-for-profit organisation dedicated to the conservation and restoration of wetlands.
2. It has been an observer in the UN Environment Programme.
3. It Promotes the protection of wetlands along the flyway routes of migratory waterbirds.

Which of the above statements is/are correct?

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

Solution: b)

Wetlands International is the only global not-for-profit organisation dedicated to the conservation and restoration of wetlands.

Wetlands International's work ranges from research and community-based field projects to advocacy and engagement with governments, corporate and international policy fora and conventions. Wetlands International works through partnerships and is supported by contributions from an extensive specialist expert network and thousands of volunteers.

Wetlands International promotes the establishment of ecological networks of well-managed, protected wetlands, along the main flyway routes of migratory waterbirds.

[Source](#)

[Source](#)

28. Consider the following statements regarding Green Climate Fund (GCF).

1. The Green Climate Fund (GCF) is the world's largest dedicated fund helping developing countries reduce their greenhouse gas emissions and enhance their ability to respond to climate change.
2. It was set up by the World Bank.
3. The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change, in particular Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States.
4. The entire support through GCF mechanism is through grants and the countries are not required to pay back.

Which of the above statements is/are correct?

- a) 1, 2, 3
- b) 1, 3
- c) 1, 3, 4
- d) 1, 2, 3, 4

Solution: b)

The Green Climate Fund (GCF) is the world's largest dedicated fund helping developing countries reduce their greenhouse gas emissions and enhance their ability to respond to climate change. **It was set up by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010.** GCF has a crucial role in serving the Paris Agreement, supporting the goal of keeping average global temperature rise well below 2 degrees C.

The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change, in particular Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States.

It offers a wide range of financial products including grants, concessional loans, subordinated debt, equity, and guarantees.

Source

29. Consider the following statements regarding Icebergs.

1. An iceberg is a large piece of freshwater ice that has broken off a glacier or an ice shelf and is floating freely in open water.
2. The ocean currents does not influence the movement of icebergs.
3. Icebergs carry dust which fertilises ocean plankton.

Which of the above statements is/are correct?

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

Solution: b)

An iceberg is a large piece of freshwater ice that has broken off a glacier or an ice shelf and is floating freely in open (salt) water.

The giant iceberg A68, the biggest block of free-floating ice from Antarctica with an area of about 5,800 sq. km, has been drifting in the Atlantic Ocean since 2017.

This year, due to an ocean current, the iceberg was propelled into the South Atlantic Ocean and since then it has been drifting towards the remote sub-Antarctic island of South Georgia, prompting fears about the impact the iceberg could have on the island's abundant wildlife.

Icebergs travel with ocean currents and either get caught up in shallow waters or ground themselves.

On the other hand, there are some positives of an iceberg being stuck in the open ocean, since **icebergs carry dust which fertilises ocean plankton**, which draws up carbon dioxide from the atmosphere.

[Source](#)

30. Consider the following statements regarding Rare Earth elements.

1. Rare Earth elements are not radioactive in nature.
2. These elements are used in clean energy, healthcare, environmental mitigation, and national defence.
3. China's Rare Earths deposits account for 80% of identified global reserves.

Which of the above statements is/are correct?

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

Solution: c)

Rare Earth Elements or Rare Earth Metals are a set of 17 chemical elements in the periodic table — the 15 lanthanides, plus scandium and yttrium, which tend to occur in the same ore deposits as the lanthanides, and have similar chemical properties.

Despite their classification, most of these elements are not really "rare". One of the Rare Earths, **promethium, is radioactive**.

These elements are important in technologies of consumer electronics, computers and networks, communications, clean energy, advanced transportation, healthcare, environmental mitigation, and national defence, among others.

Scandium is used in televisions and fluorescent lamps, and yttrium is used in drugs to treat rheumatoid arthritis and cancer.

Rare Earth elements are used in space shuttle components, jet engine turbines, and drones. Cerium, the most abundant Rare Earth element, is essential to NASA's Space Shuttle Programme.

China's Rare Earths deposits account for 80% of identified global reserves.

[Source](#)

31. Shoolpaneshwar Wildlife Sanctuary, recently seen in news is located in

- a) Tamil Nadu
- b) Gujarat
- c) Uttarakhand
- d) Andhra Pradesh

Solution: b)

Shoolpaneshwar Wildlife Sanctuary is a protected area in India's Gujarat state, located in the western Satpura Range south of the Narmada River. It shares a common boundary with Madhya Pradesh and Maharashtra.

[Source](#)

32. Consider the following statements regarding transgenic crop.

1. In India, Bt cotton was the first transgenic crop used for commercial cultivation.
2. Transgenic crops are more toxic and always proliferate in the environment.
3. In India, transgenic crops are regulated under Environment Protection Act, 1986 and Seed Policy, 2002.

Which of the above statements is/are correct?

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

Solution: b)

Plant genetic engineering methods were developed over 30 years ago, and since then, genetically modified (GM) crops or transgenic crops have become commercially available and widely adopted in many countries.

In India, Bt cotton was approved by Government of India in March 2002 as the first transgenic crop for commercial cultivation.

Though, it is widely claimed that transgenic crops offers dramatic promise for meeting some of greatest challenges but like all new technologies, it also poses certain risks, because of the fact that transgenic crops can bring together new gene combinations which are not found in nature having possible harmful effects on health, environmental and non-target species.

Transgenic crops are not toxic nor are likely to proliferate in the environment. However, specific crops may be harmful by virtue of novel combinations of traits they possess.

3. Government Schemes and Programmes

1. National Investment and Infrastructure Fund (NIIF) is an investment vehicle that can fund in which of the following sectors?
1. Green energy
 2. Affordable and mid-income housing
 3. Social infrastructure
 4. Manufacturing and logistics
 5. Infrastructure services

Select the correct answer code:

- a) 1, 2, 3, 4
- b) 1, 2, 4, 5
- c) 1, 2, 4
- d) 1, 2, 3, 4, 5

Solution: d)

National Investment and Infrastructure Fund (NIIF) is India's first infrastructure specific investment fund or a sovereign wealth fund that was set up by the Government of India in February 2015. The objective behind creating this fund was to maximize economic impact mainly through infrastructure investment in commercially viable projects, both Greenfield and Brownfield.

NIIF currently manages three funds each with its distinctive investment mandate. The funds are registered as **Alternative Investment Fund (AIF)** with the Securities and Exchange Board of India (SEBI).

The three funds are:

Master Fund: Is an infrastructure fund with the objective of primarily investing in operating assets in the core infrastructure sectors such as roads, ports, airports, power etc.

Fund of Funds: Managed by fund managers who have good track records in infrastructure and associated sectors in India. Some of the sectors of focus include Green Infrastructure, Mid-Income & Affordable Housing, Infrastructure services and allied sectors.

Strategic Investment Fund: Is registered as an Alternative Investment Fund II under SEBI in India. The objective is to invest largely in equity and equity-linked instruments. It will focus on green field and brown field investments in the core infrastructure sectors.

2. Consider the following statements regarding Dedicated Freight Corridor.
1. Dedicated Freight Corridor Corporation of India Limited (DFCCIL) run by the Ministry of Railways undertakes the operation of the "Dedicated Freight Corridors" (DFC).
 2. The Western DFC is lengthier than the Eastern DFC.
 3. Western Dedicated Freight Corridor (WDFC) runs from Uttar Pradesh to Mumbai.

Which of the above statements is/are correct?

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

Solution: b)

The Dedicated Freight Corridor Corporation of India Limited (DFCCIL) recently announced that Indian Railways will be running its freight trains on 40% of the dedicated freight corridor (DFC) by next year. The DFC project is one of the Indian Railways' largest infrastructure projects. The 1,504 kms long Western DFC is from J N Port in Mumbai,

Maharashtra to Dadri in the state of Uttar Pradesh and the 1,856 kms long Eastern DFC is from Sahnewal near Ludhiana in Punjab to Dankuni in the state of West Bengal.

[Source](#)

3. An Agricultural produce market committee (APMC) is established by the
- Local Government
 - Farmer Produce Organizations (FPOs)
 - State Government
 - Authorized Local area Vendors (ALAVs)

Solution: c)

Agricultural Produce Market Committee (APMC) is a statutory market committee constituted by a State Government in respect of trade in certain notified agricultural or horticultural or livestock products, under the Agricultural Produce Market Committee Act issued by that state government.

4. Invest India, set up in 2009, is a non-profit venture under the
- Department for Promotion of Industry and Internal Trade
 - Department of Finance
 - Department of Expenditure
 - Ministry of External Affairs

Solution: a)

The UNCTAD has declared 'Invest India' as winner of the 2020 United Nations Investment Promotion Award. "Invest India" is the National Investment Promotion and Facilitation Agency of India and act as the first point of reference for investors in India. It is a non-profit venture set up in 2009 under the **Department for Promotion of Industry and Internal Trade**, Ministry of Commerce and Industry, Government of India.

[Source](#)

5. Consider the following statements:
- Minimum Support Price (MSP) may be both lower or higher than the prevailing market price of the particular crop.
 - All food grain procurement operations in India are undertaken by the Food Corporation of India (FCI).

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: a)

MSP can be anything that the government considers that the farmers should fairly get. This is to help them get fair remuneration for their produce and to motivate or demotivate them to produce a particular crop. **Hence it can be either lower or higher than the market price.** For e.g. if the government wishes to discourage rice farming, it would lower the MSP of rice.

The procurement system decentralization was started in 1997 where states play a very important role in the supply chain. **Not all procurements are done by FCI.** State cooperative agencies and other state-level distribution agencies also play a crucial role.

6. Which of the following are considered as 'indirect farm subsidies' extended by the government?
- Farmer training
 - Investment in agricultural research

3. Farm loan waivers
4. Cheaper credit facilities for farmers

Select the correct answer code:

- a) 1, 2
- b) 2, 3, 4
- c) 3, 4
- d) 1, 2, 3, 4

Solution: d)

Indirect farm subsidies: These are the farm subsidies which are provided in the form of cheaper credit facilities, farm loan waivers, reduction in irrigation and electricity bills, fertilizers, seeds and pesticides subsidy as well as the investments in agricultural research, environmental assistance, farmer training, etc. These subsidies are also provided to make farm products more competitive in the global market. The subsidies provided on the fertilizers as 'input' subsidies are in the form of indirect subsidies.

7. APMC Model Act 2003 include which of the following features
 1. Facilitating contract farming model.
 2. Special market for perishables
 3. Allowing farmers and private persons to set up their own market.
 4. APMC revenue to be used for improving market infrastructure.

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4
- d) 1, 2, 3, 4

Solution: d)

Some of the salient features of the APMC Model Act 2003 include:

- Facilitating contract farming model.
- Special market for perishables
- Allowing farmers and private persons to set up their own market.
- Relaxation of licensing norms.
- Single market fee
- APMC revenue to be used for improving market infrastructure.

However, not all states have passed the bill. Some states have passed but neither framed rules nor notified it. Thus, inter-state barriers continue.

[Source](#)

8. Directorate General of Foreign Trade (DGFT), sometimes seen in news is under which ministry
 - a) Ministry of External Affairs
 - b) Ministry of Commerce and Industry
 - c) Ministry of Finance
 - d) Ministry of Home Affairs

Solution: b)

Directorate General of Foreign Trade (DGFT) organisation is an attached office of the Ministry of Commerce and Industry and is headed by Director General of Foreign Trade. DGFT is responsible for implementing the Foreign Trade Policy with the main objective of promoting India's exports. Keeping in line with liberalization and globalization and the overall objective of increasing of exports, DGFT has since been assigned the role of "facilitator". The shift was from prohibition and control of imports/exports to promotion and facilitation of exports/imports, keeping in view the interests of the country.

Source

9. Consider the following statements regarding Commission for Agricultural Costs and Prices (CACP).
1. The Commission for Agricultural Costs & Prices (CACP) is an attached office of the Ministry of Agriculture and Farmers Welfare.
 2. It does not recommend minimum support price for any commercial crop.

Which of the above statements is/are incorrect?

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

Solution: b)

The Commission for Agricultural Costs & Prices (CACP) is an attached office of the Ministry of Agriculture and Farmers Welfare, Government of India. It came into existence in January 1965. CACP recommends MSP for 4 commercial crops (copra, sugarcane, cotton and raw jute).

10. Nikshay Poshan Yojana, sometimes seen in news is related to
- a) Reduce child mortality due to pneumonia
 - b) Provision of free dialysis services to the poor
 - c) National TB Elimination Program
 - d) National AIDS Control Program

Solution: c)

NI-KSHAY is the web enabled patient management system for TB control under the National Tuberculosis Elimination Programme (NTEP). It is developed and maintained by the Central TB Division (CTD), Ministry of Health and Family Welfare, Government of India, in collaboration with the National Informatics Centre (NIC), and the World Health Organization Country office for India.

Nikshay is used by health functionaries at various levels across the country both in the public and private sector, to register cases under their care, order various types of tests from Labs across the country, record treatment details, monitor treatment adherence and to transfer cases between care providers. It also functions as the National TB Surveillance System and enables reporting of various surveillance data to the Government of India.

[Source](#)

11. Consider the following statements regarding POSHAN Abhiyaan.
1. POSHAN Abhiyaan is Government of India's flagship programme to improve nutritional outcomes for children, pregnant women and lactating mothers.
 2. NITI Aayog is the monitoring authority for POSHAN Abhiyaan.
 3. The target of the mission is to eliminate stunting among children in the age group 0-6 years by 2022.

Which of the above statements is/are correct?

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

Solution: b)

About Poshan Abhiyaan:

The programme seeks to improve nutritional outcomes for children, pregnant women and lactating mothers. Launched in 2018 with specific targets to be achieved by 2022.

It aims to reduce:

Stunting and wasting by 2% a year (total 6% until 2022) among children.

Anaemia by 3% a year (total 9%) among children, adolescent girls and pregnant women and lactating mothers.

The target of the mission is to bring down stunting among children in the age group 0-6 years from 38.4% to 25% by 2022.

NITI Aayog has played a critical role in shaping the POSHAN Abhiyaan. NITI Aayog has been entrusted with the task of closely monitoring the POSHAN Abhiyaan and undertaking periodic evaluations.

Source

12. Consider the following statements regarding Bureau of Energy Efficiency (BEE).

1. Bureau of Energy Efficiency (BEE) is a statutory body whose primary objective is of reducing energy intensity of the Indian economy.
2. BEE give financial assistance to institutions for promoting efficient use of energy and its conservation.
3. The items covered under the Star Labeling Programme includes Deep Freezers, Light Commercial Air Conditioners, Domestic Gas Stove, Ballast and Microwave Oven.

Which of the above statements is/are correct?

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

Solution: d)

The Government of India set up Bureau of Energy Efficiency (BEE) on 1st March 2002 under the provisions of the **Energy Conservation Act, 2001**. The mission of the Bureau of Energy Efficiency is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001 with the primary objective of **reducing energy intensity of the Indian economy**.

The Major Promotional Functions of BEE include:

Create awareness and disseminate information on energy efficiency and conservation

Arrange and organize training of personnel and specialists in the techniques for efficient use of energy and its conservation

Strengthen consultancy services in the field of energy conservation

Promote research and development

Develop testing and certification procedures and promote testing facilities

Formulate and facilitate implementation of pilot projects and demonstration projects

Promote use of energy efficient processes, equipment, devices and systems

Take steps to encourage preferential treatment for use of energy efficient equipment or appliances

Promote innovative financing of energy efficiency projects

Give financial assistance to institutions for promoting efficient use of energy and its conservation

Prepare educational curriculum on efficient use of energy and its conservation

Implement international co-operation programmes relating to efficient use of energy and its conservation

In a step further towards its vision of building an energy efficient India, the government-backed Bureau of Energy Efficiency (BEE) has extended its list of items covered under the 'Star Labeling Programme' by adding Deep Freezers and Light Commercial Air Conditioners (LCAC).

Standards & Labeling Program: The scheme was launched by the Minister of Power in May, 2006 and is currently invoked for equipments/appliances Room Air Conditioner (Fixed Speed), Ceiling Fan, Colour Television, Computer, Direct Cool Refrigerator, Distribution Transformer, Domestic Gas Stove, Frost Free Refrigerator, General Purpose Industrial Motor, Monoset Pump, Openwell Submersible Pump Set, Stationary Type Water Heater, Submersible Pump Set, Tfl, Washing Machine (Semi/Top Load/Front Load), Ballast, Solid State Inverter, Office Automation Products, Diesel Engine Driven Monosetpumps For Agricultural Purposes, Diesel Generator Set, Led Lamps, Room Air Conditioner (Variable Speed), Chillers, Agricultural Pumpset, Microwave Oven, Deep Freezers, Light Commercial Ac Fixed Speed, Light Commercial Ac Variable Speed.

Source Source

13. Consider the following statements regarding District Mineral Foundation (DMF) Funds.

1. Though District Mineral Foundation's operation is under state governments, the Central Government retains the power to prescribe the rates of contribution.
2. DMF funds are treated as extra-budgetary resources for the States.
3. Pradhan Mantri Khanij Kshetra Kalyan Yojana is meant to provide for the welfare of areas and people affected by mining related operations, using the funds generated by District Mineral Foundations (DMFs).

Which of the above statements is/are correct?

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

Solution: d)

The Central Government retains the power to prescribe the rates of contribution, though DMF's operation is under state governments.

The Central Government notified on 17 September 2015 the rates of contribution payable by miners to the DMFs. In case of all mining leases executed before 12th January, 2015 (the date on which Mines and Minerals (Development & Regulation) Amendment Act (MMDR Amendment Act) came into force) miners will have to contribute an amount equal to 30% of the royalty payable by them to the DMFs. Where mining leases are granted after 12.01.2015, the rate of contribution would be 10% of the royalty payable. (Subsequent to the enactment of MMDR Amendment Act, mining leases are given out after auctions; hence, a lower levy).

DMF funds are treated as extra-budgetary resources for the States.

Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) is meant to provide for the welfare of areas and people affected by mining related operations, using the funds generated by District Mineral Foundations (DMFs).

Source

14. Consider the following statements regarding National Mission on Transformative Mobility and Storage.

1. National Mission on Transformative Mobility and Storage is chaired by the Union Minister of New and Renewable Energy.
2. It focuses on manufacturing of Electric Vehicles, Electric Vehicle Components and Batteries.
3. The Mission aims to make India complete self dependent on manufacturing Electric Vehicle Batteries by 2030.

Which of the above statements is/are correct?

- a) 2 only

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

Solution: a)

National Mission on Transformative Mobility and Storage:

Composition:

The multi-disciplinary “National Mission on Transformative Mobility and Battery Storage” with an Inter-Ministerial Steering Committee will be **chaired by CEO NITI Aayog**.

The Steering Committee will be comprised of Secretaries from Ministry of Road Transport and Highways, Ministry of Power, Ministry of New and Renewable Energy, Department of Science and Technology, Department of Heavy Industry, Department for Promotion of Industry and Internal Trade, and Director General, Bureau of Industrial Standards.

Role:

- The Mission will recommend and drive the strategies for transformative mobility and Phased Manufacturing Programmes for EVs, EV Components and Batteries.
- A Phased Manufacturing Program (PMP) will be launched to localize production across the entire EV value chain. The National Mission on Transformative Mobility and Battery Storage will determine the contours of PMP, and will finalise the details of such a program.
- The details of the value addition that can be achieved with each phase of localisation will be finalised by the Mission with a clear Make in India strategy for the electric vehicle components as well as battery.
- The Mission will coordinate with key stakeholders in Ministries/ Departments and the states to integrate various initiatives to transform mobility in India.
- The Mission will ensure holistic and comprehensive growth of the battery manufacturing industry in India.

[Source](#)

15. Consider the following statements.

1. National Intelligence Grid (NATGRID) acts as a link between intelligence and investigation agencies.
2. National Crime Records Bureau (NCRB) maintains an online database on FIRs and stolen vehicles.
3. National Crime Records Bureau implements the Crime and Criminal Tracking Network and Systems

(CCTNS) project.

Which of the above statements is/are correct?

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

Solution: d)

The National Intelligence Grid (NATGRID) has signed a memorandum of understanding with the National Crime Records Bureau (NCRB) to access the centralised online database on FIRs and stolen vehicles.

First conceptualised in 2009, NATGRID seeks to become the one-stop destination for security and intelligence agencies to access database related to immigration entry and exit, banking and telephone details of a suspect on a “secured platform”.

The MoU, signed will give NATGRID access to the Crime and Criminal Tracking Network and Systems (CCTNS) database, a platform that links around 14,000 police stations. All State police are mandated to file First Information Reports (FIR) in the CCTNS.

The data pertaining to FIRs of a particular police station are a State subject.

NATGRID will act as a link between intelligence and investigation agencies.

CCTNS project is implemented by National Crime Records Bureau.

Source

16. Consider the following statements regarding National Disaster Response Fund (NDRF).

1. NDRF is located in the "Public Accounts" of Government of India under "Reserve Funds not bearing interest".
2. The relief activities for all the calamities are monitored by the Ministry of Home Affairs.
3. NDRF amount can be spent only towards meeting the expenses for emergency response, relief and rehabilitation.

Which of the above statements is/are correct?

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

Solution: b)

National Disaster Response Fund is defined in Section 46 of the Disaster Management Act, 2005 (DM Act) as a **fund managed by the Central Government for meeting the expenses for emergency response, relief and rehabilitation** due to any threatening disaster situation or disaster. NDRF is constituted to supplement the funds of the State Disaster Response Funds (SDRF) of the states to facilitate immediate relief in case of calamities of a severe nature.

NDRF amount can be spent only towards meeting the expenses for emergency response, relief and rehabilitation. For projects exclusively for the purpose of mitigation, i.e, measures aimed at reducing the risk, impact or effect of a disaster or threatening disaster situation a separate fund called **National Disaster Mitigation Fund** has to be constituted.

The NDRF is financed through the levy of a cess on certain items, chargeable to excise and customs duty, and approved annually through the Finance Bill. The requirement for funds beyond what is available under the NDRF is met through general budgetary resources.

Currently, a National Calamity Contingency Duty (NCCD) is levied to finance the NDRF and additional budgetary support is provided as and when necessary. A provision also exists in the DM Act to encourage any person or institution to make a contribution to the NDRF.

NDRF is located in the "Public Accounts" of Government of India under "Reserve Funds not bearing interest".

Department of Agriculture and Cooperation under Ministry of Agriculture (MoA) monitors relief activities for calamities associated with drought, hailstorms, pest attacks and cold wave /frost while rest of the natural calamities are monitored by Ministry of Home Affairs (MHA).

[Source](#)

17. Consider the following statements regarding PM SVANidhi scheme.

1. The PM SVANidhi scheme, is a credit facility that provides street vendors a collateral-free loan of Rs 1,00,000 with low rates of interest for a period of one year.
2. The scheme is part of the AtmaNirbhar Bharat package.
3. Small Industries Development Bank of India (SIDBI) is the implementing agency for the scheme.

Which of the above statements is/are correct?

- a) 1, 2
- b) 1, 3

- c) 2, 3
- d) 2 only

Solution: c)

Ministry of Housing & Urban Affairs launched a scheme **PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi)** to empower Street Vendors by not only extending loans to them, but also for their holistic development and economic upliftment. The scheme intends to facilitate **collateral free working capital loans of up to INR10,000/- of one-year tenure, to approximately 50 lakh street vendors**, to help resume their businesses in the urban areas, including surrounding peri-urban/rural areas.

Small Industries Development Bank of India (SIDBI) is the implementing agency.

[Source](#)

[Source](#)



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4. Science and Technology

1. Consider the following statements regarding Kala-azar.

1. Kala-azar is a tropical disease characterised by irregular fever, weight loss, anaemia and swelling of the spleen and liver.
2. It is caused by a protozoan Leishmania parasite and is transmitted to humans by the bite of infected female sandflies.
3. India has been successful in controlling the disease outbreak and accounts for about one-tenth of the total global cases.

Which of the above statements is/are correct?

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

Solution: a)

Kala-azar or visceral leishmaniasis (VL) is a tropical disease characterised by irregular fever, weight loss, anaemia and swelling of the spleen and liver. It is caused by a protozoan Leishmania parasite and is transmitted to humans by the bite of infected female sandflies. According to the World Health Organisation (WHO), globally, about 7 to 10 lakh new cases occur annually.

India accounts for about two-thirds of the total global cases, and the disease is endemic to Bihar, Jharkhand, Uttar Pradesh and West Bengal. An initiative was launched by WHO to eliminate VL as a public health problem from the South East Asia region by 2020. The deadline has now been extended to 2023.

Source

2. At any time after the expiration of three years from the date of the grant of a patent, any person interested may make an application for grant of compulsory licence on patent on which of the following grounds?

1. The reasonable requirements of the public with respect to the patented invention have not been satisfied.
2. The patented invention is not available to the public at a reasonably affordable price.
3. The patented invention is worked in the territory of India by a non-Indian pharmaceutical company.

Select the correct answer code:

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

Solution: a)

At any time after the expiration of three years from the date of the grant of a patent, any person interested may make an application to the Controller for grant of compulsory licence on patent on any of the following grounds, namely:—

- (a) that the reasonable requirements of the public with respect to the patented invention have not been satisfied, or
- (b) that the patented invention is not available to the public at a reasonably affordable price, or
- (c) **that the patented invention is not worked in the territory of India.**

Source

3. Hayabusa2 project, recently seen in news is related to

- a) Developing fuel cell that finds commercial applications

- b) Asteroid sample-return mission
- c) an orbiting spacecraft which seeks to become the first to be propelled solely by sunlight
- d) Astronomical observatory with an extremely large telescope

Solution: b)

Japan’s Hayabusa2 spacecraft left the asteroid Ryugu a year ago and is expected to reach Earth and drop a capsule containing the precious samples in southern Australia on December 6. The soil samples and data from the asteroid could provide clues to the origins of the solar system.

Hayabusa2 project: It is an **asteroid sample-return mission** operated by the Japanese space agency, JAXA.

4. The three-drug Bedaquiline, Pretomanid and Linezolid (BPaL) regimen is used to treat
- a) *Coronavirus* disease
 - b) Hepatitis B
 - c) Tuberculosis
 - d) Measles

Solution: c)

At a time when the world grapples with highly treatment-resistant tuberculosis, the recently approved three-drug regimen to tackle the condition has shown a 90 per cent favourable outcome, according to a new study.

5. The Internet is expanding everyday necessitating the development of new storage. Among the following, what is the correct ascending order of data size or data storage?
1. Terabyte
 2. Exabyte
 3. Petabyte
 4. Zettabyte

Select the correct answer code:

- a) 1-2-3-4
- b) 1-3-4-2
- c) 1-3-2-4
- d) 1-2-4-3

Solution: c)

Memory Capacity Conversion Chart

Term (Abbreviation)	Approximate Size
Byte (B)	8 bits
Kilobyte (KB)	1024 bytes / 10^3 bytes
Megabyte (MB)	1024 KB / 10^6 bytes
Gigabyte (GB)	1024 MB / 10^9 bytes
Terabyte (TB)	1024 GB / 10^{12} bytes
Petabyte (PB)	1024 TB / 10^{15} bytes
Exabyte (EB)	1024 PB / 10^{18} bytes
Zettabyte (ZB)	1024 EB / 10^{21} bytes
Yottabyte (YB)	1024 ZB / 10^{24} bytes

6. Edge computing enables data to be analysed, processed, and transferred at the edge of a network. Here ‘Edge’ implies
- a) Local
 - b) Global

- c) Cloud computing
- d) Nodal

Solution: a)

According to a research, By 2025, companies will generate and process more than 75% of their data outside of traditional centralised data centres — that is, at the “edge” of the cloud.

As the use of Internet of Things (IoT) devices expands and the need to process IoT data quickly increases, many IT leaders are considering or beginning to employ edge computing options.

What is edge computing?

Edge computing enables data to be analysed, processed, and transferred at the edge of a network. Meaning, the data is analysed locally, closer to where it is stored, in real-time without latency, rather than send it far away to a centralised data centre.

It allows for quicker data processing and content delivery.

7. Consider the following statements regarding Machine to Machine communications (M2M).
1. Machine to Machine communications refer to automated applications which involve machines or devices communicating through a network without human intervention.
 2. It enables data to be transmitted from one device to another device through wired and wireless communications networks.
 3. Machine to machine communications can be used for the development of smart cities and grids, transportation systems and healthcare.

Which of the above statements is/are correct?

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

Solution: d)

M2M communications refer to automated applications which involve machines or devices communicating through a network without human intervention. Sensors and communication modules are embedded within M2M devices, enabling data to be transmitted from one device to another device through wired and wireless communications networks.

Machine-to-Machine (M2M) communications forms the basis for automated information exchange between machines. It can impact various industries like smart cities and grids, transportation systems and healthcare, among others.

[Source](#)

8. Consider the following statements regarding Thirty Meter Telescope.
1. It is an astronomical observatory with an extremely large telescope.
 2. India is one of the funding partners for the project.
 3. TMT is designed for near-ultraviolet to mid-infrared observations.
 4. It will enable scientists to study gravitational waves from massive objects far away.

Which of the above statements is/are correct?

- a) 1, 2, 4
- b) 1, 2, 3
- c) 1, 3, 4
- d) 1, 2, 3, 4

Solution: b)

About TMT:

- It is an astronomical observatory with an extremely large telescope (ELT).
- **It is an international project being funded by scientific organisations of Canada, China, India, Japan and USA.**
- Planned location: Mauna Kea on the island of Hawaii in the US state of Hawaii.
- Purpose: The TMT is designed for near-ultraviolet to mid-infrared observations, featuring adaptive optics to assist in correcting image blur.

Significance:

- TMT will enable scientists to **study fainter objects far away from us in the Universe**, which gives information about early stages of evolution of the Universe.
- It will give us finer details of not-so-far-away objects like undiscovered planets and other objects in the Solar System and planets around other stars.

Australian Square Kilometre Array Pathfinder (ASKAP), recently seen in news is primarily intended to

- Map the structure and evolution of the Universe
- Discover evidence of water molecules on the moon
- Spacecraft which seeks to become the first to be propelled solely by sunlight
- Study Electrodynamics of Moon's Interaction with the Sun

Solution: a)

The Australian Square Kilometre Array Pathfinder (ASKAP), a powerful telescope developed and operated by the country's science agency CSIRO, has mapped over three million galaxies in a record 300 hours during its first all-sky survey.

ASKAP surveys are designed to **map the structure and evolution of the Universe**, which it does by observing galaxies and the hydrogen gas that they contain.

[Source](#)

9. A quantum computer stores information in
- Hexadecimal systems
 - Qubits
 - Binary digits
 - A network of disengaged computer clouds

Solution: b)

Rather than store information using bits represented by 0s or 1s as conventional digital computers do, quantum computers use quantum bits, or qubits, to encode information as 0s, 1s, or both at the same time. This superposition of states—along with the other quantum mechanical phenomena of entanglement and tunneling—enables quantum computers to manipulate enormous combinations of states at once.

10. Consider the following statements regarding Nuclear magnetic resonance spectroscopy (NMR).
- Nuclear magnetic resonance spectroscopy (NMR) technique is used for determining the structure of organic compounds.
 - It is used in various food systems for quality control and research.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: c)

Nuclear magnetic resonance spectroscopy (NMR) is the most powerful technique for determining the structure of organic compounds. NMR techniques are used successfully in various food systems for quality control and research.

Centre for Science and Environment (CSE) said the investigation found that the honey sold by 10 out of 13 brands in Indian markets are adulterated with sugar syrup. Nuclear Magnetic Resonance (NMR) tests managed to expose the adulteration.

[Source](#)

11. Consider the following statements regarding Desalination.

1. The most commonly used technology in Desalination plants is the process of reverse osmosis.
2. In reverse osmosis, an external pressure is applied to push solvents from an area of high-solute concentration to an area of low-solute concentration through a membrane.
3. In India desalination plants have been installed in all the coastal states.

Which of the above statements is/are correct?

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

Solution: a)

Maharashtra announced the setting up of a desalination plant in Mumbai, becoming the fourth state in the country to experiment with the idea.

A desalination plant turns salt water into water that is fit to drink. The most commonly used technology used for the process is reverse osmosis where an external pressure is applied to push solvents from an area of high-solute concentration to an area of low-solute concentration through a membrane. The microscopic pores in the membranes allow water molecules through but leave salt and most other impurities behind, releasing clean water from the other side. These plants are mostly set up in areas that have access to sea water.

Desalination has largely been limited to affluent countries in the Middle East and has recently started making inroads in parts of the United States and Australia. In India, Tamil Nadu has been the pioneer in using this technology, setting up two desalination plants near Chennai in 2010 and then 2013.

[Source](#)

12. Quantum dots (QDs) are man-made nanoscale crystals that can transport electrons. Potential applications of quantum dots include

1. Solar Cells
2. LEDs
3. Quantum Computing
4. Medical Imaging
5. Cell Biology Research

Select the correct answer code:

- a) 1, 2, 3, 5
- b) 1, 3, 4, 5
- c) 1, 2, 3, 4, 5
- d) 2, 3, 4, 5

Solution: c)

Quantum dots (QDs) are semiconductor particles a few nanometres in size, having optical and electronic properties that differ from larger particles due to quantum mechanics.

When the quantum dots are illuminated by UV light, an electron in the quantum dot can be excited to a state of higher energy.

Potential applications of quantum dots include single-electron transistors, solar cells, LEDs, lasers, single-photon sources, second-harmonic generation, quantum computing, cell biology research, and medical imaging. Their small size allows for some QDs to be suspended in solution, which may lead to use in inkjet printing and spin-coating. They have been used in Langmuir-Blodgett thin-films. These processing techniques result in less expensive and less time-consuming methods of semiconductor fabrication.

[Source](#)

13. Havana syndrome, recently seen in news is related to

- a) Non-Communicable Diseases
- b) Neurological illness
- c) Tuberculosis
- d) Severe acute respiratory syndrome (SARS)

Solution: b)

Nearly four years after a mysterious **neurological illness, referred to as “Havana syndrome”**, started to afflict American diplomats and intelligence operatives in Cuba, China, and other countries, a report by the National Academies of Sciences (NAS) has found **“directed” microwave radiation** to be its “plausible” cause.

In late 2016, **US diplomats and other employees stationed in Havana** reported feeling ill after hearing strange sounds and experiencing odd physical sensations in their hotel rooms or homes. The symptoms included nausea, severe headaches, fatigue, dizziness, sleep problems, and hearing loss, which have since come to be known as “Havana Syndrome”.

[Source](#)

14. Consider the following statements regarding Black Carbon.

1. Black carbon is a component of fine particulate matter, formed through the incomplete combustion of fossil fuels, biofuel, and biomass.
2. Black carbon increases the albedo when deposited on snow and ice.
3. In the tropics, black carbon in soils significantly contributes to the soil fertility.

Which of the above statements is/are correct?

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

Solution: b)

Black carbon (BC) is a component of fine particulate matter. Black carbon consists of pure carbon in several linked forms. It is formed through the incomplete combustion of fossil fuels, biofuel, and biomass, and is emitted in both anthropogenic and naturally occurring soot. Black carbon causes human morbidity and premature mortality.

In climatology, black carbon is a climate forcing agent. Black carbon warms the Earth by absorbing sunlight and heating the atmosphere and by **reducing albedo when deposited on snow and ice.**

Black carbon stays in the atmosphere for only several days to weeks, whereas carbon dioxide (CO₂) has an atmospheric lifetime of more than 100 years.

The term black carbon is also used in soil sciences and geology. Especially in the tropics, **black carbon in soils significantly contributes to fertility as it is able to absorb important plant nutrients.**

15. Near Field Communications (NFC) technology is used in which among the following applications?

1. Baggage identification in Airports
2. Contactless card payment
3. Healthcare
4. Metro train cards

Select the correct answer code:

- a) 1, 2, 3
- b) 2, 3, 4
- c) 1, 2, 4
- d) 1, 2, 3, 4

Solution: d)

All of the above given are application of Near Field Communication (NFC) technology.

Near-field communication is a set of communication protocols that enable two electronic devices, one of which is usually a portable device such as a smartphone, to establish communication by bringing them within 4 cm of each other.

16. Consider the following statements regarding “Innate immunity” in human beings.

1. It is present at the time of birth.
2. It is disease specific due to its memory of disease attack and response.

Which of the above statements is/are correct?

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

Solution: a)

It prevents the entry of the foreign agents into our body when our bodies are weak especially at the time of birth. It remains with us throughout our lives.

It is “Acquired Immunity” that is disease specific, not innate immunity which is general in nature. This means that our body when it encounters a pathogen for the first time produces a response called primary response which is of low intensity.

Subsequent encounter with the same pathogen elicits a highly intensified secondary or anamnestic response. This is ascribed to the fact that our body appears to have memory of the first encounter.

17. Consider the following statements regarding Herd immunity.

1. It is the resistance to the spread of a contagious disease within a population.
2. It occurs when high proportion of individuals are resistant to the disease.
3. It may occur due to immunization or naturally.

Which of the above statements is/are correct?

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

Solution: d)

Herd immunity is a form of indirect protection from infectious disease that occurs when a large percentage of a population has become immune to an infection, thereby providing a measure of protection for individuals who are not immune.

It is the resistance to the spread of a contagious disease within a population.

It occurs when high proportion of individuals are resistant to the disease.

It may occur due to immunisation or naturally.

Herd immunity depends on the contagiousness of the disease. Diseases that spread easily, such as measles, require a higher number of immune individuals in a community to reach herd immunity.

18. Ailments caused by Virus are

1. Severe acute respiratory syndrome (SARS)
2. Typhoid
3. Dysentery
4. Influenza

Select the correct answer code:

- a) 1, 2
- b) 2, 4
- c) 1, 4
- d) 1, 3

Solution: c)

Common ailments like cold, influenza (flu) and most coughs are caused by viruses. SARS, polio and chicken pox are also caused by viruses.

Diseases like dysentery and malaria are caused by protozoans whereas typhoid and tuberculosis (TB) are bacterial diseases.

19. The terms “Pratyush and Mihir” sometimes seen in the news are related to

- a) Fuel cells that finds commercial applications
- b) High Performance Computing (HPC) Systems
- c) Quantum supercomputers of ISRO
- d) Quick Reaction Surface-to-Air missiles

Solution: b)

Pratyush and Mihir are the supercomputers established at Indian Institute of Tropical Meteorology (IITM), Pune and National Centre for Medium Range Weather Forecast (NCMRWF), Noida respectively.

Being a **High-Performance Computing (HPC)** facility, Pratyush and Mihir consists of several computers that can deliver a peak power of 6.8 PetaFlops. It is the first multi-PetaFlops supercomputer ever built in India.

Pratyush and Mihir are used in the fields of weather forecasting and climate monitoring in India. It helps the country to make better forecasts in terms of Monsoon, fishing, air quality, extreme events like Tsunami, cyclones, earthquakes, lightning and other natural calamities such as floods, droughts etc.

India is the fourth country in the world to have a High-Performance Computing facility dedicated for weather and climate research after Japan, the United States and the United Kingdom.

[Source](#)

20. Astronauts have to wear special protective space suits filled with air when they go to the moon or outer space. This is because of

1. Lack of air pressure in these regions
2. Very cold temperature in these regions
3. Dangerous radiation in these regions

Select the correct answer code:

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

Solution: b)

On the moon there is almost no air and hence no air pressure. If they did not wear these space suits, the counter pressure exerted by the body of the astronauts would make the blood vessels burst. The astronauts would bleed. Astronauts must wear spacesuits whenever they leave a spacecraft and are exposed to the environment of space. In space, there is no air to breathe and no air pressure. **Space is extremely cold and filled with dangerous radiation.** Without protection, an astronaut would quickly die in space. Spacesuits are specially designed to protect astronauts from the **cold, radiation and low pressure in space.** They also provide air to breathe. Wearing a spacesuit allows an astronaut to survive and work in space.

21. Glyphosate, Atrazine and Butachlor, recently seen in news is

- a) Anti-malarial drug
- b) Antibiotic resistant bacteria
- c) Weedicide
- d) None of the above

Solution: c)

Weedicide Consumption in India		<i>(in tonnes)</i>			
Chemical	2014-15	2015-16	2016-17	2017-18	2018-19
Atrazine	228.89	281.85	251.13	302.37	387
Butachlor	993.71	783.14	812.59	343.47	565.24
Glyphosate	718.06	529.15	478.99	654.35	678.81
Pretilachlor	277.85	352.00	359.83	131.8	276.68
2,4-Di Chlorophenoxy Acetic Acid	798.02	796.26	789.41	—	871.51
Total*	4,889.85	3,565.78	4,495.33	3,265.1	4,031.8

*Includes imported and others chemicals

Source

22. Plasmodium ovale, recently in news causes

- a) Measles
- b) Severe Acute Respiratory Syndrome (SARS)
- c) Malaria
- d) Pneumonia

Solution: c)

A not very common type of malaria, Plasmodium ovale, has been **identified in a jawan in Kerala**. The soldier is believed to have contracted it during his posting in Sudan, from where he returned nearly a year ago, and where Plasmodium ovale is endemic.

[Source](#)

23. Prime editing, sometimes seen in news is related to
- 3D printing Technology
 - Editing subatomic particles in Quantum communication
 - Blockchain Technology
 - Genome editing technology

Solution: d)

Prime editing is a 'search-and-replace' genome editing technology in molecular biology by which the genome of living organisms may be modified. The technology directly writes new genetic information into a targeted DNA site.

[Source](#)

24. National Centre for Polar and Ocean Research (NCPOR) and the Goa University (GU) have successfully synthesized gold nanoparticles (GNPs). What are the applications of gold nanoparticles (GNPs)?
- They have greater solar radiation absorbing ability.
 - Detection and diagnosis of diseases.
 - Targeted drug delivery

Select the correct answer code:

- 1, 2
- 1, 2, 3
- 2, 3
- 1, 3

Solution: b)

The National Centre for Polar and Ocean Research (NCPOR) and the Goa University (GU) have successfully synthesized gold nanoparticles (GNPs) using psychrotolerant Antarctic bacteria through a non-toxic, low-cost, and eco-friendly way.

These GNPs can be used as a composite therapeutic agent clinical trials, especially in anti-cancer, anti-viral, anti-diabetic, and cholesterol-lowering drugs.

Nanoparticles (NPs) have wide variety of potential applications in the fields of biomedical, optical and electronics research. Metallic NPs have been efficiently exploited for biomedical applications and among them GNPs are found to be effective in biomedical research.

GNPs also have unique physicochemical properties. Their biocompatibility, high surface area, stability, and nontoxicity make them suitable for various applications in **therapeutic use including detection and diagnosis of diseases, bio-labeling, and targeted drug delivery**. As nano-carriers, GNPs are capable of transferring various drugs made out of peptides, proteins, plasmid DNAs, small interfering RNAs, and chemotherapeutic agents to target diseased cells of the human body.

GNPs are also found to be useful in the **electronics industry**. Scientists have constructed a transistor known as NOMFET (Nanoparticle Organic Memory Field-Effect Transistor) by embedding GNPs in a porous manganese oxide as a room temperature catalyst to break down volatile organic compound in air and combining GNPs with organic molecules.

Source

25. Which of the following services generally use encryption to secure data transmission?

1. Payment gateways
2. Messaging services
3. Wireless microphones and bluetooth devices
4. Bank automatic teller machines

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4
- d) 1, 2, 3, 4

Solution: d)

Encryption is the process of encoding messages or information in such a way that only authorized parties can read it.

All messaging services like WhatsApp, Viber, Google Chat, Yahoo messenger use encrypted services. **Banks (payment gateways) and e-commerce sites** also use encryption to protect financial and private data including passwords.

Encryption is also used to protect data in transit, for example data being transferred via networks (e.g. the Internet, e-commerce), mobile telephones, wireless microphones, wireless intercom systems, Bluetooth devices and bank automatic teller machines.

26. Dry ice is the solid form of carbon dioxide. Which of the following are the applications of Dry ice?

1. It is useful for preserving frozen foods where mechanical cooling is unavailable.
2. Prevent insect activity in closed containers of grains and grain products.
3. Used for cleaning industrial equipments.

Select the correct answer code:

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

Solution: d)

Dry ice is the solid form of carbon dioxide. It is used primarily as a cooling agent. Its advantages include lower temperature than that of water ice and not leaving any residue (other than incidental frost from moisture in the atmosphere). It is useful for preserving frozen foods where mechanical cooling is unavailable.

This extreme cold makes the solid dangerous to handle without protection due to burns caused by freezing (frostbite). While generally not very toxic, the outgassing from it can cause hypercapnia (abnormally elevated carbon dioxide levels in the blood) due to buildup in confined locations.

Dry ice can be used to arrest and prevent insect activity in closed containers of grains and grain products, as it displaces oxygen, but does not alter the taste or quality of foods. For the same reason, it can prevent or retard food oils and fats from becoming rancid.

When dry ice is placed in water, sublimation is accelerated, and low-sinking, dense clouds of smoke-like fog are created. This is used in fog machines, at theatres, haunted house attractions, and nightclubs for dramatic effects.

One of the largest mechanical uses of dry ice is blast cleaning.

27. Consider the following statements.

1. Cross pathy is a practice in which homeopathic and ayurvedic drugs are prescribed along with allopathic medicines.
2. Central Council of Indian Medicine (CCIM) is a statutory body under *Ministry of Health and Family Welfare* that monitors higher education in Indian systems of medicine.

Which of the above statements is/are correct?

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

Solution: a)

Central Council of Indian Medicine (CCIM) is a statutory body under Ministry of AYUSH, Government of India, set up in 1971 under the Indian Medicine Central Council Act, (Act 48). It is one of the Professional councils under University Grants Commission (UGC) to **monitor higher education in Indian systems of medicine**, including Ayurveda, Siddha, Unani and Sowa-Rigpa.

Cross pathy is a practice in which homeopathic and ayurvedic drugs are prescribed along with allopathic medicines.

28. Consider the following statements regarding Goldilocks zone.

1. Goldilocks zone, is the area around a star where it is not too hot and not too cold for liquid water to exist on the surface of surrounding planets.
2. Earth is the only planet in the Sun's Goldilocks zone.
3. If a planet is in the Goldilocks Zone of a star, it necessarily means the planet is going to have life or liquid water.

Which of the above statements is/are correct?

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

Solution: a)

The Goldilocks Zone refers to the habitable zone around a star where the temperature is just right - not too hot and not too cold - for liquid water to exist on a planet.

Just because a planet or moon is in the Goldilocks Zone of a star, doesn't mean it's going to have life or even liquid water.

After all, Earth isn't the only planet in the Sun's Goldilocks Zone - Venus and Mars are also in this habitable zone, but aren't currently habitable.

Source

29. Consider the following statements regarding Pneumococcal disease.

1. Pneumococcal disease is a bacterial disease and is a significant contributor for under-five mortality rate worldwide.
2. Pneumococcal disease is spread from infected person to others by direct contact with respiratory secretions, like saliva or mucus.
3. Pneumococcal Conjugate Vaccine is included in India's Universal Immunisation Programme (UIP).

Which of the above statements is/are correct?

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

Solution: d)

Pune-based Serum Institute of India (SII) **unveiled** India's first indigenously developed pneumococcal vaccine.

The vaccine targets the pneumococcal bacterium, which causes pneumonia and other serious life-threatening diseases such as meningitis and sepsis, and is estimated to cause nearly four lakh deaths in children under five years of age each year worldwide.

Pneumococcal disease is a significant contributor under-five mortality rate worldwide.

In view of its widespread fatality, the World Health Organization in 2018 recommended the inclusion of the pneumococcal conjugate vaccine (PCV) in routine childhood immunisation programmes in all countries.

Pneumococcal bacteria spread from person-to-person by direct contact with respiratory secretions, like saliva or mucus. Many people, especially children, have the bacteria in their nose or throat at one time or another without being ill.

[Source](#)

30. Proxima Centauri, sometimes seen in news is

- a) Closest Star to the Sun
- b) An exoplanet in habitable zone
- c) Nuclear powered submarine
- d) Electronic surveillance satellite

Solution: a)

Astronomers running the world's largest initiative to look for alien life have recently picked up an "intriguing" radio wave emission from the direction of **Proxima Centauri, the closest star to our Sun.**

[Source](#)

31. Consider the following statements regarding Sun Spots.

1. Sunspots are regions where the solar magnetic field is very strong
2. Sunspots appear darker than their surroundings because they are a few thousand degrees cooler than their surroundings.

Which of the above statements is/are correct?

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

Solution: c)

Sunspots are regions where the solar magnetic field is very strong.

Sunspots appear darker than their surroundings because they are a few thousand degrees cooler than their surroundings.

Most of the visible surface of the Sun has a temperature of about 5400 degrees C, but in a big sunspot the temperature can drop to about 4000 degrees C.

5. International Relations and Organisations

1. Consider the following statements regarding Singapore Convention on Mediation.
 1. It is the first UN treaty to be named after Singapore.
 2. It settles disputes between the members at the Government level and does not involve corporate disputes.
 3. India is a signatory to the Convention.

Which of the above statements is/are correct?

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

Solution: c)

The Singapore Convention on Mediation will provide a more effective way for enforcing mediated **settlements of corporate disputes** involving businesses in India and other countries that are signatories to the Convention. Also known as the **United Nations Convention on International Settlement Agreements Resulting from Mediation**, this is also the first UN treaty to be named after Singapore.

With the Convention in force, businesses seeking enforcement of a mediated settlement agreement across borders can do so by applying directly to the courts of countries that have signed and ratified the treaty, instead of having to enforce the settlement agreement as a contract in accordance with each country's domestic process.

As on September 1, the Convention has 53 signatories, including **India**, China and the U.S.

Source

2. ASEAN Plus Three (APT) includes which of the following countries?
 1. China
 2. India
 3. Japan
 4. Australia

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4
- d) 1, 3

Solution: d)

ASEAN Plus Three (APT) is a forum that functions as a coordinator of co-operation between the Association of Southeast Asian Nations and the three East Asia nations of **China, Japan, and South Korea**. ASEAN plus Six further includes India, Australia and New Zealand.

3. Consider the following statements regarding 'Contract for the Web' sometimes seen in news.
 1. It is a legal document, endorsed by the United Nations.
 2. It is an attempt to address issues of political manipulation, fake news, privacy violations, and other malign forces on the internet.
 3. Protecting people's privacy and personal data to build online trust is one of the principles of it.

Which of the above statements is/are correct?

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

d) 1, 2, 3

Solution: c)

Contract for the Web is an initiative by the World Wide Web Foundation in November 2019 to attempt to address issues of political manipulation, fake news, privacy violations, and other malign forces on the internet.

The plan outlines nine central principles, three each directed at governments, companies and individuals. It was launched 25 November 2019 by Tim Berners-Lee of the World Wide Web Foundation.

The **'Contract for the Web'** is not a legal document, or a United Nations document.

[Source](#)

4. Consider the following statements regarding United Nations Alliance of Civilizations (UNAOC).
1. United Nations Alliance of Civilization (UNAOC) aims to improve understanding and cooperative relations among nations and peoples across cultures and religions.
 2. It helps to counter the forces that fuel polarization and extremism.
 3. UNAOC was established at the initiative of the Governments of India and USA.

Which of the above statements is/are correct?

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

Solution: a)

UNAOC: Alliance of Civilizations

The Alliance of Civilizations aims to improve understanding and cooperative relations among nations and peoples across cultures and religions. It also helps to **counter the forces that fuel polarization and extremism.**

The United Nations Alliance of Civilization (UNAOC) was established in 2005, at the initiative of the Governments of Spain and Turkey, under the auspices of the United Nations.

[Source](#)

5. Which of the following is/are some of the goals of the Shanghai Cooperation Organisation (SCO)?
1. Promoting effective cooperation between members in politics, trade, the economy, research, technology and culture
 2. Maintaining peacekeeping forces in member nations on the request of an individual member country
 3. Guarding disputed borders between member nations and settling international border disputes concerning member nations

Select the correct answer code:

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

Solution: c)

The Shanghai Cooperation Organisation, also known as the Shanghai Pact, is a Eurasian political, economic, and military organisation which was founded in 2001 in Shanghai.

The SCO's main goals are: strengthening mutual trust and neighbourliness among the member states; **promoting their effective cooperation in politics, trade, the economy, research, technology and culture, as well as in education, energy, transport, tourism, environmental protection, and other areas;** making joint efforts to

maintain and ensure peace, security and stability in the region; and moving towards the establishment of a democratic, fair and rational new international political and economic order.

Recently India hosted the SCO heads of Government summit for the first time after it gained full membership of the influential grouping in 2017.

6. UN convention on the Rights of persons with disabilities includes which of these rights for the differently abled?
1. Rights to accessibility including the information technology
 2. Rights to live independently and be included in the community
 3. Rights to habitation and rehabilitation

Select the correct answer code:

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

Solution: d)

Rights specific to this convention include the **rights to accessibility including the information technology**, the **rights to live independently and be included in the community** (Article 19), to personal mobility (article 20), **habilitation and rehabilitation** (Article 26), and to participation in political and public life, and cultural life, recreation and sport (Articles 29 and 30).

Learning: Articles 33–39 govern reporting and monitoring of the convention by national human rights institutions (Article 33) and Committee on the Rights of Persons with Disabilities (Article 34).

[Source](#)

7. Consider the following statements regarding Comprehensive Convention on International Terrorism.
1. It is a United Nations treaty which intends to criminalize all forms of international terrorism and deny terrorists, their financiers and supporters access to funds, arms, and safe havens.
 2. All the members of the United Nations General Assembly have signed the Convention.

Which of the above statements is/are correct?

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

Solution: d)

The Comprehensive Convention on International Terrorism is a **proposed treaty** which intends to criminalize all forms of international terrorism and deny terrorists, their financiers and supporters access to funds, arms, and safe havens.

The negotiations are currently deadlocked even after two decades of proposal i.e. through 1996 till 2016.

India proposed this convention in 1996 and has since demanded consistently, especially in the wake of the 2008 Mumbai attacks.

8. S-400 air defence missile system, recently seen in news is developed by
- a) United States
 - b) China
 - c) Israel
 - d) Russia

Solution: d)

The S-400 Triumf, (NATO calls it SA-21 Growler), is a mobile, surface-to-air missile system (SAM) designed by Russia. It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).

The system can engage all types of aerial targets including aircraft, unmanned aerial vehicles (UAV) and ballistic and cruise missiles within the range of 400km, at an altitude of up to 30km.

9. Consider the following statements regarding Countering America's Adversaries through Sanctions Act (CAATSA).

1. Its core objective is to counter Iran, Russia and North Korea through punitive measures.
2. It empowers the US President to impose some sanctions on persons engaged in a "significant transaction" with Russian defence and intelligence sectors.

Which of the above statements is/are correct?

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

Solution: c)

Countering America's Adversaries through Sanctions Act (CAATSA) was passed unanimously by the US Congress and signed reluctantly by Donald Trump. Enacted on August 2, 2017, **its core objective is to counter Iran, Russia and North Korea through punitive measures.**

Title II of the Act primarily deals with sanctions on Russian interests such as its oil and gas industry, defence and security sector, and financial institutions, in the backdrop of its military intervention in Ukraine and its alleged meddling in the 2016 US Presidential elections.

Section 231 of the Act **empowers the US President to impose at least five of the 12 listed sanctions — enumerated in Section 235 of the Act — on persons engaged in a "significant transaction" with Russian defence and intelligence sectors.**

[Source](#)

10. Consider the following statements regarding Leadership Group on Industry Transition.

1. The Leadership Group for Industry Transition (LeadIT) gathers countries and companies that are committed to reaching net zero carbon emissions from industry by 2050.
2. India is a part of this Grouping.
3. It was launched with the support from the World Economic Forum (WEF).

Which of the above statements is/are correct?

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

Solution: d)

The Leadership Group for Industry Transition (LeadIT) gathers countries and companies that are committed to reaching net zero carbon emissions from industry by 2050.

The governments of Sweden and India, with support from the World Economic Forum (WEF) launched the Leadership Group for Industry Transition (LeadIT) at the UN Secretary General's Climate Action Summit in September, 2019. LeadIT is grounded in the conviction that partnership between the public and private sectors is key to achieving the industrial transition.

[Source](#) [Source](#)

11. Consider the following statements regarding Permanent Court of Arbitration (PCA).

1. Permanent Court of Arbitration (PCA) is an intergovernmental organization that resolve disputes that arise out of international agreements between member states, international organizations or private parties.
2. Human Rights Issues are the exclusive domain of United Nations Commission on Human Rights, therefore PCA does not involve in Human Rights issues.
3. Permanent Court of Arbitration (PCA) is an official United Nations Observer.

Which of the above statements is/are correct?

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

Solution: b)

The Permanent Court of Arbitration (PCA) is an intergovernmental organization located in The Hague, Netherlands. It is not a court in the traditional sense, but provides services of arbitral tribunal to **resolve disputes that arise out of international agreements between member states, international organizations or private parties.**

The cases span a range of legal issues involving territorial and maritime boundaries, sovereignty, **human rights**, international investment, and international and regional trade.

The organization is not a United Nations agency, but the PCA is an **official United Nations Observer.**

[Source](#) [Source](#)

12. Consider the following statements regarding International Court of Justice.

1. International Court of Justice is the principal judicial organ of the United Nations and was established by the United Nations Charter.
2. It settles legal dispute between States submitted to it by them and deal with applications from individuals and non-governmental organizations.
3. It gives advisory opinion on legal matters referred to it by duly authorized United Nations organs and specialized agencies.

Which of the above statements is/are correct?

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

Solution: c)

What is the International Court of Justice?

The Court is the principal judicial organ of the United Nations. It was established by the United Nations Charter, which was signed in 1945 in San Francisco (United States), and began work in 1946 in the Peace Palace, The Hague (Netherlands).

The Court, which is composed of 15 judges, has a twofold role: first, to settle, in accordance with international law, legal disputes between States submitted to it by them and, second, to **give advisory opinions on legal matters referred to it by duly authorized United Nations organs and specialized agencies.**

Who may submit cases to the Court?

Only States are eligible to appear before the Court in contentious cases.

The Court has **no jurisdiction to deal with applications from individuals, non-governmental organizations, corporations or any other private entity**. It cannot provide them with legal advice or help them in their dealings with national authorities.

However, a State may take up the case of one of its nationals and invoke against another State the wrongs which its national claims to have suffered at the hands of the latter; the dispute then becomes one between States.

[Source](#)

13. Consider the following statements regarding International Court of Justice.

1. The International Court of Justice has no jurisdiction to try individuals accused of war crimes or crimes against humanity.
2. ICJ acts as an appeal court for any international tribunal.
3. The judgements of the ICJ are final and without appeal.

Which of the above statements is/are correct?

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

Solution: c)

The International Court of Justice has no jurisdiction to try individuals accused of war crimes or crimes against humanity. As it is not a criminal court, it does not have a prosecutor able to initiate proceedings.

The Court is not a supreme court to which national courts can turn; it does not act as a court of last resort for individuals. **Nor is it an appeal court for any international tribunal.** It can, however, rule on the validity of arbitral awards.

The Court can only hear a dispute when requested to do so by one or more States. It cannot deal with a dispute on its own initiative. Neither is it permitted, under its Statute, to investigate and rule on acts of sovereign States as it chooses.

Judgments are final and without appeal. If there is a dispute about the meaning or scope of a judgment, the only possibility is for one of the parties to make a request to the Court for an interpretation. In the event of the discovery of a fact hitherto unknown to the Court which might be a decisive factor, either party may apply for revision of the judgment.

[Source](#)

6. Polity

1. Consider the following statements.

1. At present, postal ballots are allowed for certain categories of voters living in India.
 2. Election Commission of India (ECI) is the deciding authority to permit NRIs to cast their votes from overseas through postal ballots.
 3. For allowing voting rights to NRIs, amendments were done to Representation of the People Act 1950.
- Which of the above statements is/are correct?

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

Solution: b)

At present, postal ballots are allowed for certain categories of voters living in India. The new proposal is for overseas voters.

Recently the Election Commission (EC) approached the Law Ministry to permit NRIs to cast their votes from overseas through postal ballots.

What is the current process of voting for Indian citizens living abroad?

An NRI can vote in the constituency in which her place of residence, as mentioned in the passport, is located. She can only vote in person and will have to produce her passport in original at the polling station for establishing identity. **Voting rights for NRIs were introduced only in 2011, through an amendment to the Representation of the People Act 1950.**

[Source](#)

2. Attorney General's consent is mandatory for initiating contempt of court in which of the following circumstances?
1. When a private citizen wants to initiate a case of contempt of court against a person.
 2. When the Supreme court want to initiate a contempt of court case.

Select the correct answer code:

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

Solution: a)

The Contempt of Courts Act, 1971, lays down the law on contempt of court. Section 15 of the legislation describes the procedure on how a case for contempt of court can be initiated.

In the case of the Supreme Court, the Attorney General or the Solicitor General, and in the case of High Courts, the Advocate General, may bring in a motion before the court for initiating a case of criminal contempt. However, if the motion is brought by any other person, **the consent in writing** of the Attorney General or the Advocate General is required.

The AG's consent is mandatory when a private citizen wants to initiate a case of contempt of court against a person.

However, when the court itself initiates a contempt of court case, as it did in the case of Prashant Bhushan recently, the AG's consent is not required.

Article 129 of the Constitution gives the Supreme Court the power to initiate contempt cases on its own, independent of the motion brought before it by the AG or with the consent of the AG.

Source

3. Consider the following statements regarding Article 32 of the Indian Constitution.

1. Article 32 affirms the right to move the Supreme Court for the enforcement of the rights conferred in Part III of the Indian Constitution.
2. The right guaranteed under Article 32 is absolute and shall not be suspended.
3. An individual approaching the High Court under Article 226 for the violation of fundamental rights is itself a fundamental right.

Which of the above statements is/are incorrect?

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

Solution: c)

What is Article 32?

- It is one of the fundamental rights listed in the Constitution that each citizen is entitled. Article 32 deals with the 'Right to Constitutional Remedies', or affirms the right to move the Supreme Court by appropriate proceedings for the enforcement of the rights conferred in Part III of the Constitution.
- It states that the Supreme Court "shall have power to issue directions or orders or writs, including writs in the nature of habeas corpus, mandamus, prohibition, quo warranto and certiorari, whichever may be appropriate, for the enforcement of any of the rights conferred by this Part". **The right guaranteed by this Article "shall not be suspended except as otherwise provided for by this Constitution".**
- During the 1975 Emergency, a five-judge bench of the Supreme Court, in the ADM Jabalpur vs Shivakant Shukla case, had ruled that the **right to constitutional remedies under Article 32 would remain suspended during a national emergency.**
- The 44th Amendment also stated that according to Article 359, the president could issue orders suspending the right to move any court for the enforcement of fundamental rights, under Article 32, during a national emergency, with the exception of Article 20 (deals with protection of certain rights in case of conviction for offences) and Article 21 (protection of life and personal liberty).

In civil or criminal matters, the first remedy available to an aggrieved person is that of trial courts, followed by an appeal in the High Court and then the Supreme Court. When it comes to violation of fundamental rights, an individual can approach the High Court under Article 226 or the Supreme Court directly under Article 32. **Article 226, however, is not a fundamental right like Article 32.**

Source

4. Consider the following statements regarding the Sessions of Parliament in India.

1. India does have a fixed parliamentary calendar and meets for three sessions in a year.
2. Usually the Budget session has the longest period.
3. The summoning of Parliament is based on the provisions of the Government of India Act, 1935.

Which of the above statements is/are correct?

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

Solution: c)

India does not have a fixed parliamentary calendar. By convention, Parliament meets for three sessions in a year. **The longest, the Budget Session,** starts towards the end of January, and concludes by the end of April or

first week of May. The session has a recess so that Parliamentary Committees can discuss the budgetary proposals.

The **summoning of Parliament** is specified in Article 85 of the Constitution. Like many other articles, it is **based on a provision of The Government of India Act, 1935**. This provision specified that the central legislature had to be summoned to meet at least once a year, and that not more than 12 months could elapse between two sessions.

[Source](#)

5. Consider the following statements.

1. Voting rights for NRIs were introduced in India soon after Economic Liberalisation in 1991, through an amendment to the Representation of the People Act 1950.
2. To extend the postal voting facility to NRI voters, the Government doesn't require the Parliament's nod.
3. Kerala has the largest number of registered NRI Voters.

Which of the above statements is/are correct?

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

Solution: b)

Voting rights for NRIs were introduced only in 2011, through an amendment to the Representation of the People Act 1950.

The EC recently pushed only for postal voting rights for NRIs, not proxy voting. **To extend the postal voting facility to overseas voters, the government only needs to amend the Conduct of Election Rules 1961. It doesn't require Parliament's nod.**

Which foreign countries have the largest numbers of NRIs registered as voters in India?

The EC does not have data on NRI voters broken down country-wise. Rather, the Commission keeps the data for every state in India.

Out of 1.18 lakh NRI voters, the largest number — about 89,000 — are registered to vote in Kerala. The second-largest cohort (roughly 7,500) are registered in Andhra Pradesh, followed by Maharashtra (5,500 approx), Karnataka (4,500 approx), Tamil Nadu (3,200), and Telangana (2,500).

[Source](#)

[Source](#)

6. Consider the following statements.

1. According to the Constitution of India, The Governor shall from time to time summon the House or each House of the Legislature of the State to meet at such time and place as he thinks fit.
2. The Governor always has to act on the aid and advice of the cabinet and cannot decide on his or her own on summoning the House.

Which of the above statements is/are correct?

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

Solution: a)

"The Governor shall from time to time summon the House or each House of the Legislature of the State to meet at such time and place as he thinks fit..." says Article 174 of the Constitution. The provision also puts on the Governor the responsibility of ensuring that the House is summoned at least once every six months.

Although it is the Governor's prerogative to summon the House, according to Article 163, the Governor is required to act on the "aid and advice" of the Cabinet. So when the Governor summons the House under Article 174, this is not of his or her own will but on the aid and advice of the Cabinet.

There are a **few instances where the Governor can summon the House despite the refusal of the Chief Minister who heads the Cabinet**. When the Chief Minister appears to have lost the majority and the legislative members of the House propose a no-confidence motion against the Chief Minister, then the Governor can decide on his or her own on summoning the House.

But the actions of the Governor, when using his discretionary powers can be challenged in court.

[Source](#)



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7. History, Art and Culture

1. The Pagri Sambhal Jatta Movement, during the British period is related to
 - a) Socio-religious reform movement
 - b) Restrictions on sell of forest produce by the British.
 - c) Farmers' agitation against British laws.
 - d) None of the above

Solution: c)

A 1907 ballad of defiance has made a quiet comeback over a century later to inspire protesting Punjab farmers.

'Pagri Sambhal Jatta', a song by by Banke Dayal, was introduced at a peasants rally in Lyallpur that year. It soon became an anthem that defined the **farmers' agitation against three British laws** – the Doab Bari Act, Punjab Land Colonisation Act and the Punjab Land Alienation Act.

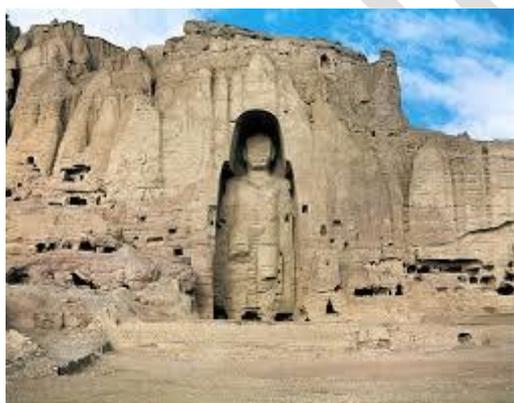
The tales of that unrest led by Bhagat Singh's uncle, Ajit Singh, continue to inspire the current protesters

[Source](#)

2. The iconic Bamyán Buddha, was located in
 - a) Bhutan
 - b) Sri Lanka
 - c) Afghanistan
 - d) Vietnam

Solution: c)

*Buddhas of Bamiyan were two 6th-century monumental statues of Gautama Buddha carved into the side of a cliff in the **Bamiyan valley of central Afghanistan**. The statues represented a later evolution of the classic blended style of Gandhara art. The statues were blown up and destroyed in March 2001 by the Taliban.*



[Source](#)

8. States

1. Roshni Act, sometimes seen in news is related to
 - a) New Delhi
 - b) Andhra Pradesh
 - c) Punjab
 - d) None of the Above

Solution: d)

The Roshni Act was originally called the Jammu and Kashmir State Land (Vesting of Ownership Rights to the Occupants) Act, 2001.

As per the Act, the ownership rights of State land would be transferred to its occupants on the payment of a fee fixed by the government.

In October 2020, the Jammu and Kashmir High Court held the Roshni Act as 'unconstitutional'.

Source

9. Reports and Indices

1. Global Biodiversity Outlook report is published by
 - a) UN Environment Programme (UNEP)
 - b) UN Convention of Biological Diversity (CBD)
 - c) World Wide Fund for Nature (WWF)
 - d) World Economic Forum

Solution: b)

The fifth edition of the **UN's Global Biodiversity Outlook report, published recently by the UN Convention of Biological Diversity (CBD)**, provides an overview of the state of nature worldwide. The report notes the importance of biodiversity in addressing climate change and long-term food security, and that action to protect biodiversity is essential to prevent future pandemics.

[Source](#)

2. Emissions Gap Report 2020, recently seen in news is released by
 - a) World Wide Fund for Nature
 - b) United Nations Environment Programme (UNEP)
 - c) World Economic Forum
 - d) Germanwatch

Solution: b)

The United Nations Environment Programme (UNEP) released its annual Emissions Gap Report 2020.

The annual report from UNEP measures "the gap between anticipated emissions and levels consistent with the Paris Agreement goals of limiting global warming this century to well below 2°C and pursuing 1.5°C".

Source

3. Planetary pressures-adjusted Human Development Index (PHDI) that reflect the impact caused by each country's per-capita carbon emissions and its material footprint, is released by
- World Economic Forum
 - United Nations Development Programme
 - World Bank
 - United Nations Environment Programme (UNEP)

Solution: b)

India dropped two ranks in the United Nations' Human Development Index this year, standing at 131 out of 189 countries. However, if the Index were adjusted to assess the planetary pressures caused by each nation's development, India would move up eight places in the ranking, according to the report.

For the first time, the **United Nations Development Programme introduced a new metric to reflect the impact caused by each country's per-capita carbon emissions and its material footprint**, which measures the amount of fossil fuels, metals and other resources used to make the goods and services it consumes.

[Source](#)

4. Global Economic Freedom Index 2020, is released by
- World Bank
 - World Economic Forum
 - International Monetary Fund
 - None of the above

Solution: d)

India has fallen 26 spots to the 105th position on the Global Economic Freedom Index 2020. The country was at the 79th spot in last year's rankings. The Economic Freedom of the World: 2020 Annual Report by **Canada's Fraser Institute** has been released in India in conjunction with New Delhi-based think tank Centre For Civil Society.

[Source](#)

10. Maps / Places

1. Which of the following Central Asian countries border China?

1. Kazakhstan
2. Turkmenistan
3. Uzbekistan
4. Kyrgyzstan

Select the correct answer code:

- a) 1, 2, 3
- b) 2, 3, 4
- c) 1, 4
- d) 1, 2, 3

Solution: c)



2. Which among the following countries in South-East Asia is land locked?

1. Laos
2. Cambodia
3. Thailand

Select the correct answer code:

- a) 2 only
- b) 1 only
- c) 3 only
- d) None of the above

Solution: b)



3. Dead Sea is a Salt Lake sandwiched between
- Israel and Jordan
 - Israel and Syria
 - Jordan and Syria
 - Syria and Lebanon

Solution: a)



4. Bhasan Char, an Island recently in news is located in
- Arabian Sea
 - Bay of Bengal
 - South China Sea
 - Sea of Japan

Solution: b)

Rohingya refugees are transported to Bhashan Char, or floating island, in the Bay of Bengal.



5. Which of these water bodies witnesses sun rise at the earliest?

- a) Black Sea
- b) Mediterranean Sea
- c) Caspian Sea
- d) Red Sea

Solution: c)

Sunrise will be at the earliest at a farther east point. Caspian Sea lies the easternmost among all of the options.



6. The Horn of Africa is a term used to denote the region containing

1. Djibouti
2. Eritrea
3. Ethiopia
4. Somalia

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 2, 3, 4
- d) 1, 2, 3, 4

Solution: d)

Horn of Africa is a peninsula and the easternmost projection of the African continent. The Horn of Africa consists of the countries of **Djibouti, Eritrea, Ethiopia, and Somalia**.

7. Arrange these places from North to South.

1. Chagos Islands
2. Reunion Island
3. Maldives
4. Lakshadweep

Select the correct answer code:

- a) 2-1-3-2
- b) 4-3-1-2
- c) 4-1-2-3
- d) 4-3-2-1

Solution: b)

8. The Indian states bordering Bangladesh are

- 1. Tripura
- 2. Sikkim
- 3. Assam
- 4. Mizoram

Select the correct answer code:

- a) 1, 2, 3
- b) 1, 3, 4
- c) 1, 4
- d) 1, 2, 3, 4

Solution: b)

India and Bangladesh share a 4,096 km-long international border, with West Bengal having the highest length with 2,217 km. The length of the border in the other four states is Tripura(856km), Meghalaya(443km), Assam(262km) and Mizoram(180km).

9. The place Swabhimán Anchal, recently seen in news is located in

- a) Kerala
- b) Odisha
- b) Tamil Nadu
- d) West Bengal

Solution: b)

Maoist-prone area in Odisha's Malkangiri district — Swabhimán Anchal.

[Source](#)

10. The Water bodies bordering Turkey are

- 1. Mediterranean Sea
- 2. Aegean Sea
- 3. Black Sea
- 4. Caspian Sea

Select the correct answer code:

- a) 1, 2, 4
- b) 1, 3, 4
- c) 1, 2, 3
- c) 1, 3

Solution: c)

Turkey is bordered on its northwest by Greece and Bulgaria; north by the Black Sea; northeast by Georgia; east by Armenia, Azerbaijan, and Iran; southeast by Iraq; south by Syria and the **Mediterranean Sea**; and west by the **Aegean Sea**.



11. Arrange the following places from South to North:

1. Spratly islands
2. Paracel islands
3. Java Sea
4. Strait of Malacca

Select the correct answer codes

- a) 4321
- b) 3421
- c) 3412
- d) 4312

Solution: c)



11. Miscellaneous

1. Tharu tribals, recently seen in news, primarily belongs to
 - a) Terai Lowlands
 - b) Western Ghats
 - c) North-eastern India
 - d) Bastar region

Solution: a)

The Tharu community belongs to the Terai lowlands, amid the Shivaliks or lower Himalayas. The Tharus live in both India and Nepal. In the Indian terai, they live mostly in Uttarakhand, Uttar Pradesh, and Bihar. The word tharu is believed to be derived from sthavir, meaning followers of Theravada Buddhism.

The Uttar Pradesh government has recently embarked upon a scheme to take the unique culture of its ethnic Tharu tribe across the world. The intention is to put Tharu villages on the tourism map, and to create jobs and bring economic independence to the tribal population.

[Source](#)

2. Consider the following statements.
 1. Replacement level fertility is the level of fertility at which a population exactly replaces itself from one generation to the next.
 2. When a country reaches replacement level fertility, it attains zero population growth.

Which of the above statements is/are correct?

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

Solution: a)

Replacement level fertility is the level of fertility at which a population exactly replaces itself from one generation to the next.

According to the UN Population Division, a **total fertility rate (TFR) of about 2.1 children per woman is called replacement-level fertility**. If replacement level fertility is sustained over a sufficiently long period, each generation will exactly replace itself. The replacement level of TFR is dependent also on maternal mortality and child mortality, and, as such, it is higher in underdeveloped countries. The replacement fertility rate is indeed only slightly above 2.0 births per woman for most industrialized countries.

When a country reaches replacement level fertility, other conditions must be met for zero population growth to also be attained. Replacement level fertility will lead to zero population growth only if mortality rates remain constant and migration has no effect.

[Source](#)

[Source](#)

When things didn't fall in line even in my third Mains, I emailed InsightsonIndia to seek guidance for the next attempt. InsightsIAS Offline program suited all my requirements. Thus, I moved in and stayed nearby Insights institute.

I followed offline prelims test series of Insights and also, prelims cum mains integrated study plan that was given to core batch students. I scheduled my day in accordance with the test series timetable (please make your own timetable which suits you the best). In my timetable I ensured 8 hours of sleep, one hour of sports and 5 minutes break in between. Make a realistic timetable which is practically possible to implement, set achievable targets and be honest to yourself in following it.

I improved immensely by getting the personal feedback by Vinay Sir, and was able to top the UPSC CSE-2016.

NANDINI K R ”
AIR 01, CSE 2016

