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Table of Contents

1. Geography	1
2. History & Culture	4
3. Polity.....	7
4. Economy.....	11
5. Environment.....	16
6. Science & Technology	21

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1. Geography

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1. Identify the idea of Planetary Boundaries among the following:

- A. The concept suggests that it is the range of orbits around a star within which a planetary surface can support liquid water given sufficient atmospheric pressure.
- B. The concept suggests that the world's societies need to set limits on human-caused disturbances to tightly linked Earth system processes.
- C. The concept suggests that it is an estimate of the range of distances from the Sun allowing the existence of liquid water.
- D. The concept explains a parameter Λ (lambda), expressing the likelihood of an encounter resulting in a given deflection of planet from the existing orbit.

Answer: B

Explanation

- The Planetary Boundaries concept is an effort to use this Earth system perspective to provide information on human-driven changes. The concept suggests that the world's societies need to set limits on human-caused disturbances to tightly linked Earth system processes.
- It is already a useful integrating framework for illustrating the risks of human interference with the Earth system through our patterns of consumption and production. It presents the idea of a safe zone for critical Earth system processes.

2. Concept of Peak Water is related with –

- A. Dependence on water
- B. Water from the highest peaks of the world
- C. The maximum amount of water a submarine can displace
- D. The amount of rise in sea-level following 1 degree Celsius rise in average global temperature

Answer: A

Explanation

- Peak water is a concept that underlines the growing constraints on the availability, quality, and use of freshwater resources. ... Much of the world's water in underground aquifers and in lakes can be depleted and thus resembles a finite resource. The phrase peak water sparks debates similar to those about peak oil.

3. Bombay reef is situated in:

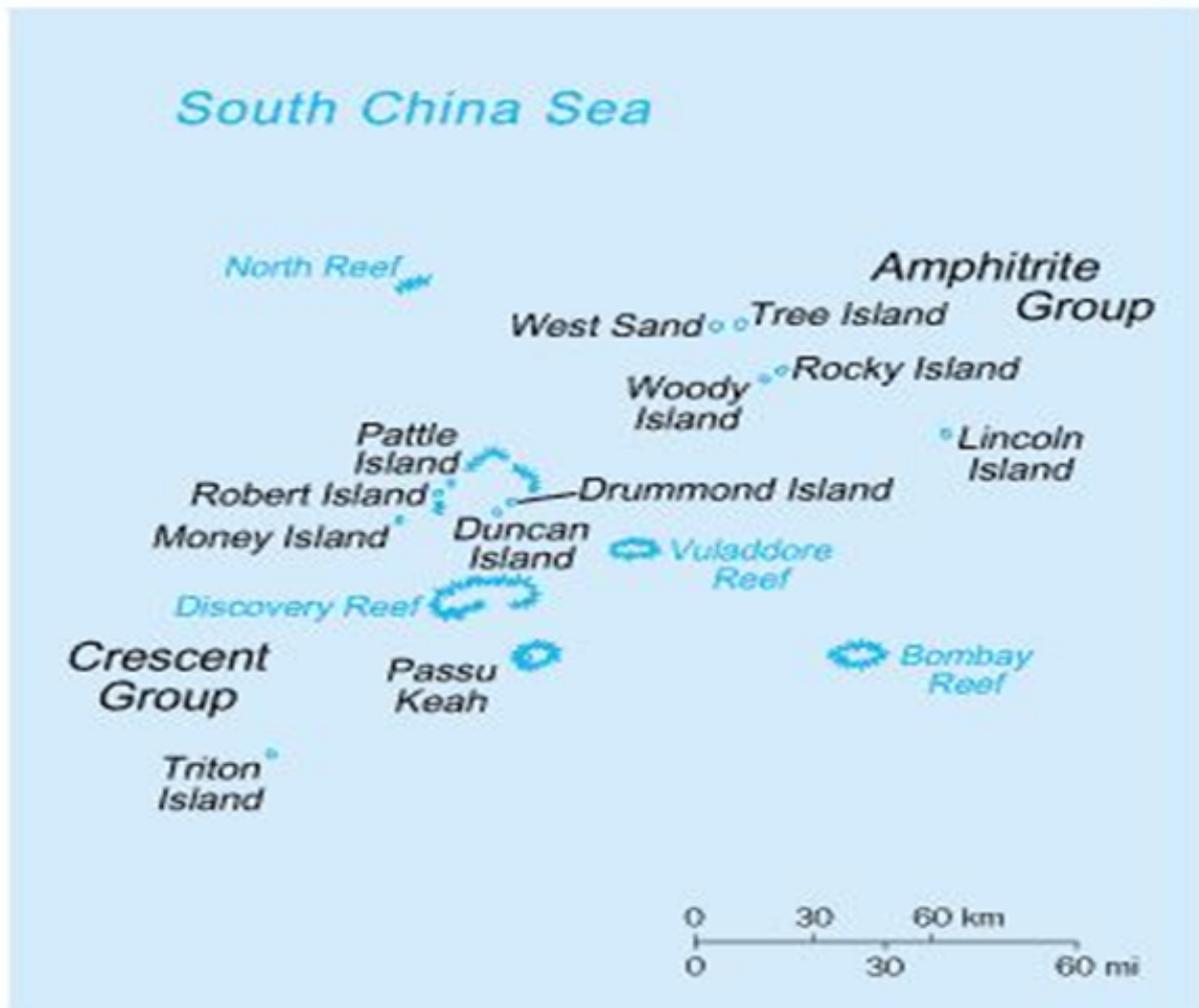
- A. Arabian Sea

- B. Bay of Bengal
- C. South China Sea
- D. East China Sea

Answer: C

Explanation

- Bombay Reef is in South China Sea
- Bombay Reef is an atoll of the Paracel Islands.



4. Match list 1 with list 2: (UPSC QUESTION)

List-I (Volcanic Mountain)	List-II (Country)
a. Mt. Rainier	a. Italy
b. Etna	b. Mexico
c. Paricutin	c. Philippines
d. Taal	d. USA

a b c d

A. 4 2 1 3

B. 4 1 2 3

C. 2 1 4 3

D. 4 3 2 1

Answer: B

5. Survey of India is under the Ministry of: (UPSC QUESTION)

A. Ministry of Defence

B. Ministry of Home Affairs

C. Ministry of Environment, Forest and Climate Change

D. Ministry of Science and Technology

Answer: D

Explanation

- The Surveyor General of India is the Head of Department of Survey of India, a Department under the Ministry of Science and Technology of Government of India.

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2. History & Culture

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1. Regarding the Indus Valley Civilization, consider the following statements: (2011)

1. It was predominantly a secular civilization and the religious element, though present, did not dominate the scene
2. During this period, cotton was used for manufacturing textiles in India.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer: C

Explanation

- Farmers in Indus Valley Civilization were the first to weave cotton textiles.
- Some cotton textiles were unearthed in 1929 in Mohenjodaro.
- The Indus Civilization was highly developed & it was not bound by religious rule, it was a secular civilization.

2. The “dharma” and “rita” depict a central idea of ancient Vedic civilization of India, In this context, consider the following statements :(2011)

1. Dharma was a conception of obligations and of the discharge of one’s duties to oneself and to others.
2. Rita was the fundamental moral law governing the functioning of the universe and all it contained.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer: C

Explanation

- Etymologically, Dharma is derived from the root Dhr—to hold—and its meaning is ‘that which holds’ this world.
- Rita is predecessor to Dharma and is the Original Rig Vedic concept which refers to the principle of natural order which regulates and coordinates the operation of the universe and everything within it.
- Rita is described as that which is ultimately responsible for the proper functioning of the natural, moral and sacrificial orders.
- While Rita encompassed the ethical principles with a notion of cosmic retribution, Dharma was said to be a path to be followed as per the ordinances of Rita.
- Committing to the path of Rita was “Dharma”. So we can say that Dharma was originally conceptualized as a subordinate component Rita. Dharma became a very useful instrument in framing religious, moral and social regulations, and discussion of its applications to social and moral order eclipsed all discussions of metaphysical and theological ideas.
- The notion of Dharma shifted emphasis away from nature as executor of Rita and now it became more or less an individual duty to uphold the Dharma through one’s actions.

3. Which one of the following describes best the concept of Nirvana in Buddhism?

- A. The extinction of the flame of desire
- B. The complete annihilation of self
- C. A state of bliss and rest
- D. A mental stage beyond all comprehension

Answer: A

Explanation

- In the Buddhist tradition, Nirvana has commonly been interpreted as the extinction of the "three fires", or "three poisons" – greed (raga), aversion (dvesha) and ignorance (moha).
- When these fires are extinguished, release from the cycle of rebirth (saṃsāra) is attained.

4. The Chinese traveller Yuan Chwang (Hiuen Tsang) who visited India recorded the general conditions and culture of India at that time. In this context, which of the following statements is/are correct? (2013)

1. The roads and river-routes were completely immune from robbery.
2. As regards punishment for offences, ordeals by fire, water and poison were the instruments for determining the innocence or guilt of a person.
3. The tradesmen had to pay duties at ferries and barrier stations.

Select the correct answer using the codes given below.

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer: B

Explanation

- Haun Tsang has described that travelling was not very much safe at that time.
- He has described that there were a few cases of law-breaking; offenders were given physical punishments and tortured as well to extract the truth from them while the traitors were given death sentence or turned out of the kingdom.

5. Which of the following characterizes/characterize the people of Indus Civilization? (2013)

1. They possessed great palaces and temples.
2. They worshipped both male and female deities.
3. They employed horse-drawn chariots in warfare.

Select the correct statement(s) using the codes given below.

- A. 1 and 2 only
- B. 2 only
- C. 1, 2 and 3
- D. None of the statements given above is correct

Answer: B

Explanation

- John Marshall, in 1931, identified the following as prominent features of the Indus religion: a Great Male God and a Mother Goddess; deification or veneration of animals and plants; symbolic representation of the phallus (linga) and vulva (yoni); and, use of baths and water in religious practice
- One Indus Valley seal shows a seated figure with a horned headdress, possibly tricephalic and possibly ithyphallic, surrounded by animals.
- Marshall identified the figure as an early form of the Hindu god Shiva (or Rudra), who is associated with asceticism, yoga, and linga; regarded as a lord of animals; and often depicted as having three eyes.
- The seal has hence come to be known as the Pashupati Seal

3. Polity

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1. What is the difference between “vote-on-account” and “interim budget”? (2011)

1. The provision of a “vote-on-account” is used by a regular Government, while an “interim budget” is a provision used by a caretaker Government.
2. A “vote-on-account” only deals with the expenditure in Government’s budget, while an “interim budget” includes both expenditure and receipts.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer: B

Explanation

- The Constitution states that ‘no money shall be withdrawn from the Consolidated Fund of India except under appropriation made by law’. Accordingly, an appropriation bill is introduced to provide for the appropriation, out of the Consolidated Fund of India
- The Appropriation Bill becomes the Appropriation Act after it is assented to by the President.
- This takes time and usually goes on till the end of April. But the government needs money to carry on its normal activities after 31 March
- To overcome this functional difficulty, the Constitution has authorised the Lok Sabha to make any grant in advance in respect to the estimated expenditure for a part of the financial year, pending the completion of the voting of the demands for grants
- This provision is known as the ‘vote on account’.
- It is passed (or granted) after the general discussion on budget is over. It is generally granted for two months for an amount equivalent to one-sixth of the total estimation.
- Vote on Account has only the estimate of expenses required.
- When the election is around the corner, it is unrealistic for the ruling government to launch a regular Annual Budget. So it gets passed as an Interim Budget, consisting of full estimates of the revenue and expenditure and also some policy measures too.
- The Interim Budget contains detailed documentation of every expense to be incurred and every rupee to be earned through taxes in the coming few months until the new government comes to power.

2. In India, if a religious sect/community is given “the status of a national minority, what special advantages it is entitled to? (2011)

1. It can establish and administer exclusive educational institutions.
2. The President of India automatically nominates a representative of the community to Lok Sabha.
3. It can derive benefits from the Prime Minister’s 15-Point Programme.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer: C

Explanation

- Article 30: Under the article, all minorities shall have the right to establish and administer educational institutions of their choice.
- PM’s News 15 Point Programme is an overarching programme covering various schemes/initiatives of the participating Ministries/Departments and is implemented throughout the country.
- It aims to ensure that the benefits of various government schemes for the underprivileged reach the disadvantaged sections of the minority communities.
- It also provides that, wherever possible, 15% of targets and outlays under various schemes should be earmarked for minorities.

3. The authorization for the withdrawal of funds from the Consolidated Fund of India must come from: (2011)

- A. The President of India
- B. The Parliament of India
- C. The Prime Minister of India
- D. The Union Finance, Minister

Answer: B

Explanation

- The Constitution states that ‘no money shall be withdrawn from the Consolidated Fund of India except under appropriation made by law’.
- Accordingly, an appropriation bill is introduced to provide for the appropriation, out of the Consolidated Fund of India

- The Appropriation Bill becomes the Appropriation Act after it is assented to by the President. This act authorises (or legalises) the payments from the Consolidated Fund of India.
- No tax can be levied or collected and no expenditure can be incurred by the Executive except under the authority and with the approval of Parliament.
- Hence, the budget is placed before the Parliament for its approval.
- The enactment of the budget by the Parliament legalises the receipts and expenditure of the government for the ensuing financial year.

4. When the annual Union Budget is not passed by the Lok Sabha (2011)

- A. the Budget is modified and presented again
- B. the Budget is referred to the Rajya Sabha for suggestions
- C. the Union Finance Minister is asked to resign,
- D. the Prime Minister submits the resignation of Council of Ministers

Answer: D

Explanation

- When the annual Union Budget is not passed by the Lok Sabha, the Prime Minister submits the resignation of Council of Ministers.
- If the budget is not passed under any condition in parliament then it can be understood that the ruling party is in minority.

5. Under the Constitution of India, which one of the following is not a fundamental duty?(2011)

- A. To vote in public elections
- B. To develop the scientific temper
- C. To safeguard public property
- D. To abide by me Constitution and respect its ideals

Answer: A

Explanation

- It shall be the duty of every citizen of India –
 - ✓ To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
 - ✓ To cherish and follow the noble ideals which inspired our national struggle for freedom;
 - ✓ To uphold and protect the sovereignty, unity and integrity of India;
 - ✓ To defend the country and render national service when called upon to do so;

- ✓ To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- ✓ To value and preserve the rich heritage of our composite culture;
- ✓ To protect and improve the natural environment including forests, lakes, rivers, wildlife and to have compassion for living creatures;
- ✓ To develop the scientific temper, humanism and the spirit of inquiry and reform;
- ✓ To safeguard public property and to abjure violence;
- ✓ To strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- ✓ Who is a parent or guardian, to provide opportunities for education to his child, or as the case may be, ward between the age of six to fourteen years

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4. Economy

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1. The idea of Base Erosion and Profit Shifting is associated with:

- A. Fiscal Deficit
- B. Tax Avoidance
- C. Debt Management of the Government
- D. Management of Central Banks by the Government

Answer: B

Explanation

- In News: The Centre is right now planning to expand the scope of the equalisation levy.
- Domestic tax base erosion and profit shifting (BEPS) due to multinational enterprises exploiting gaps and mismatches between different countries' tax systems affects all countries.
- Developing countries' higher reliance on corporate income tax means they suffer from BEPS disproportionately.
- Business operates internationally, so governments must act together to tackle BEPS and restore trust in domestic and international tax systems.
- BEPS practices cost countries 100-240 billion USD in lost revenue annually, which is the equivalent to 4-10% of the global corporate income tax revenue.
- The OECD has been working with over 137 countries to bring about a consensus on fighting this tax avoidance.
- The equalisation levy was one of the suggestions in OECD's BEPS (Base Erosion and Profit Shifting) Action Plan 1 and India adopted this, though in a narrow manner, in 2016.
- But in the Finance Act 2020, the Centre has expanded the scope of this levy significantly.

2. Which of the following is/are Debt Securities

1. Non-convertible debentures (NCDs)
 2. Non-convertible redeemable preference shares (NCRPs)
 3. Commercial Papers (CPs)
- A. 1 only
 - B. 1 & 2 only
 - C. 3 only
 - D. All are correct

Answer: D

Explanation

- In News: Markets regulator SEBI has eased compliance norms for entities planning to list debt securities, including non-convertible debentures and commercial papers.
- A debt security refers to money borrowed that must be repaid that has a fixed amount, a maturity date(s), and usually a specific rate of interest.
- Some debt securities are discounted in the original purchase price. Examples of debt securities are treasury bills, bonds and commercial paper. The borrower pays interest for the use of the money and pays the principal amount on a specified date.
- Please Note: Non-Convertible Redeemable Preference Share:
 - ✓ The holders of non-convertible preference shares do not have the option to convert their holding into equity shares i.e. they remain as preference share till their redemption.
 - ✓ As per Securities and Exchange Board Of India (Issue And Listing Of Non-Convertible Redeemable Preference Shares) Regulations, 2013 Non-Convertible Redeemable Preference Share means a preference share which is redeemable in accordance with the provisions of the Companies Act, 1956 and does not include a preference share which is convertible into or exchangeable with equity shares of the issuer at a later date, with or without the option of the holder.

3. Which of the following is/are false for Extended Partial Credit Guarantee Scheme:

1. As per the modification, NBFCs/HFCs which have reported under Special Mention Account (SMA-1) category on technical reasons alone during the last one year period prior to August 1, 2018 will be eligible for benefit under the scheme.
 2. There is no sovereign guarantee to Public Sector Banks for any sort of purchase of bonds or commercial papers.
- A. 1 only
B. 2 only
C. Both are Correct
D. None is correct

Answer: B

Explanation

- In News: The Finance Ministry has informed that public sector banks (PSBs) have approved purchase of bonds/commercial papers worth ₹14,667 crore from 67 NBFCs under the extended Partial Credit Guarantee Scheme 2.0, which was rolled out as part of the ₹20-lakh crore Aatma Nirbhar Package.

- Government had, as part of the Aatma Nirbhar Package, revamped and extended the existing Partial Credit Guarantee Scheme (PCGS) to cover the borrowings of lower rated NBFCs, HFCs and other micro finance institutions (MFIs). Under the ₹45,000-crore PCGS 2.0, the Government will provide 20 per cent first loss sovereign guarantee to PSBs for purchase of bonds or commercial papers with a rating of AA and below (including unrated paper) issued by NBFCs/HFCs or MFIs.
- While the original PCGS supported transfer of assets from NBFCs/HFCs to PSBs, the extended scheme addresses temporary liquidity/ cash flow mismatches of otherwise solvent NBFCs/HFCs/ MFIs without having to resort to distress sale of their assets to meet their commitments.
- The Union Cabinet has approved the Sovereign portfolio guarantee of up to 20 percent of first loss for purchase of Bonds or Commercial Papers (CPs) with a rating of AA and below (including unrated paper with original/ initial maturity of up to one year) issued by NBFCs/ MFCs/Micro Finance Institutions (MFIs) by Public Sector Banks (PSBs) through the extension of the Partial Credit Guarantee Scheme.
- As per the modification, NBFCs/HFCs which have reported under Special Mention Account (SMA-1) category on technical reasons alone during the last one year period prior to August 1, 2018 will be eligible for benefit under the scheme.

4. Which of the following trends of the last 5 years is/are correct

1. There has been a continuous increase in the revenue collected by central government on excise duty collected on fuel.
 2. There has been a continuous increase in the share of Central Excise on fuel in the total revenue through indirect taxes.
- A. 1 only
B. 2 only
C. Both are correct
D. None is correct

Answer: D

Explanation

- In News: Because of regular rise in the prices of the fuel.
- As per the information provided by Petroleum Planning & Analysis Cell (PPAC) of the Ministry of Petroleum, contribution of Excise duty on Crude oil and Petroleum products towards Central exchequer was ₹ 2.14 lakh crores in 2018-19.
- As per the update provided in Lok Sabha on 03 February'2020, revenue from Indirect taxes amounted to ₹ 9.37 lakh crores i.e. Central Excise on Fuel was around 23% of the indirect tax revenue.
- This Central Excise revenue on fuel in 2018-19 was lesser than the previous year 2017-18 which was 2.29 lakh crores, which further fell from ₹ 2.42 lakh crores in 2016-17.

- The share of Central Excise on fuel in the total revenue through indirect taxes also fell from 28.17 % in 2016-17 and 25.2 % in 2017-18 to 23% in 2018-19.
- However, the quantum of revenue through Excise duty on petrol and its share in Indirect taxes in 2018-19 is significantly higher than the numbers in 2014-15, where in it was ₹0.99 lakh crores and 18.9% respectively.
- The provisional revenue through Excise duty on fuel is estimated at ₹2.23 lakh crores for 2019-20. This might increase substantially in 2020-21 because of the steep rise in excise duty on petrol & diesel.

5. Which of the following is/are correct about SEZs (Special Economic Zones)

1. India has more than 500 approved SEZs at the moment.
 2. Starting as Export Processing Zone (EPZ) model in promoting exports, Asia's first EPZ was set up in Kandla in 1965.
- A. 1 only
B. 2 only
C. Both are correct
D. None is correct

Answer: B

Explanation

- In News: SEZs will have to play a big role as the government plans to move ahead in curtailing the imports from China.
- India was one of the first in Asia to recognize the effectiveness of the Export Processing Zone (EPZ) model in promoting exports, with Asia's first EPZ set up in Kandla in 1965.
- With a view to overcome the shortcomings experienced on account of the multiplicity of controls and clearances; absence of world-class infrastructure, and an unstable fiscal regime and with a view to attract larger foreign investments in India, the Special Economic Zones (SEZs) Policy was announced in April 2000.
- This policy intended to make SEZs an engine for economic growth supported by quality infrastructure complemented by an attractive fiscal package, both at the Centre and the State level, with the minimum possible regulations.
- SEZs in India functioned from 1.11.2000 to 09.02.2006 under the provisions of the Foreign Trade Policy and fiscal incentives were made effective through the provisions of relevant statutes.
- The SEZ Act 2005 envisages key role for the State Governments in Export Promotion and creation of related infrastructure. A Single Window SEZ approval mechanism has been provided through a 19 member inter-ministerial SEZ Board of Approval (BoA). The applications duly recommended by the respective State Governments/UT Administration are considered by this BoA periodically. All decisions of the Board of approvals are with consensus.

Fact Sheet on Special Economic Zones
(Dedicated website: www.sezindia.nic.in)

Number of Formal approvals (As on 19.05.2020)	423
Number of notified SEZs (As on 19.05.2020)	357 + (7 Central Govt.+12 State Govt. / Private Sector SEZs set up prior to the enactment of SEZ Act, 2005)
Number of In-Principle Approvals (As on 19.05.2020)	32
Operational SEZs (As on 31 st December, 2019)	240 (Break up: 25 are multi product SEZs, remaining are sector specific SEZs)
Units approved in SEZs (As on 31 st December, 2019)	5,258

- The SEZ Rules provide for different minimum land requirement for different class of SEZs. Every SEZ is divided into a processing area where alone the SEZ units would come up and the non-processing area where the supporting infrastructure is to be created.

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Question.

What are SEZs (Special Economic Zones)?

Have they been able to accomplish their intended goals?

Comment.



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5. Environment

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1. Consider the following statements

1. Asiatic lion naturally found in India only
2. Double-humped camel is naturally found in India only
3. One-horned rhinoceros is naturally found in India only

Which one of the statement given above is/are correct?

- A. 1 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer: A

Explanation

- The Asiatic Lion, endemic to Gir landscape of Gujarat, is one of the 21 critically endangered species identified by the Ministry for taking up recovery programmes.
- Asiatic Lion, being listed in Schedule-I of Wildlife (Protection) Act, 1972, to be accorded the highest degree of protection.
- The last census (14th census) in the year 2015 (last in 2010) showed the population of 523 Asiatic Lions (27% increase, from 411) in Gir Protected Area Network of 1648.79 sq. km. that includes Gir National Park, Gir Sanctuary, Pania Sanctuary, Mitiyala Sanctuary adjoining reserved forests, Protected Forests, and Unclassed Forests.
- IUCN Status – Endangered
- Schedule I of Wildlife (Protection) Act 1972
- Appendix I of CITES
- Greater one-horned rhinoceros (Indian Rhino)- Vulnerable.
- With at least half of the total population, India's Kaziranga National Park remains the key reserve for this species.
- It is found in northern India and southern Nepal.
- Two species of rhino in Asia -
 - ✓ Javan (lesser one-horned rhinoceros) and Sumatran - critically endangered.
- Indian camels have only one hump.
- Two humped camel are called Bactrian camel, found in Central Asia's cold deserts.

2. Wildlife: Naturally found in

1. Blue finned mahseer : Cauvery river
2. Irrawaddy dolphin : Chambal river
3. Rusty spotted cats : Eastern ghats

Which one of the pair given above are correctly matched?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer: C

Explanation



- The hump-backed mahseer is a large freshwater fish also called the tiger of the water and is found only in the Cauvery river basin (including Kerala's Pambar, Kabini and Bhavani rivers).
- It has been categorized as "Critically Endangered", more threatened than the tiger is, as per the International Union for Conservation of Nature's Red List of Threatened Species.
- Shoal (an international organisation working to conserve freshwater species) has initiated 'Project Mahseer' along with other stakeholders to enable conservation action for the hump-backed mahseer.
- In the Cauvery, the Mahseer community comprises two varieties—a "blue-finned" fish and an "orange-finned, hump-backed" one.
- The Humpback Mahseer is being replaced by non-native, blue-finned outsider.
- Blue-finned variety was introduced from Maharashtra in the 1980s, the study says.
- The endemic Humpback Mahseer is on the brink of extinction having been replaced by non-native, blue-finned outsiders, which have been artificially bred and introduced in the river in the name of conservation.
- The Irrawaddy dolphin is a euryhaline species of oceanic dolphin found in discontinuous subpopulations near sea coasts and in estuaries and rivers in parts of the Bay of Bengal and Southeast Asia.
- It is found in three rivers –
 - ✓ Irrawaddy (Myanmar)



- ✓ Mahakam (Indonesian Borneo)
- ✓ Mekong (China)

- The Irrawaddy Dolphin (*Orcaella brevirostris*) is the flagship species of Chilika Lake.
- Chilika is home to the only known population of Irrawaddy Dolphins in India.
- One of only two lagoons in the world is home to this species -- Irrawaddy Dolphin
- The rusty-spotted cat is one of the cat family's smallest members, of which historical records are known only from India and Sri Lanka.
- In 2012, it was also recorded in the western Terai of Nepal.
- He rusty-spotted cat is classified as Near Threatened in the IUCN Red List.

3. How is the National Green Tribunal (NGT) different from the Central Pollution Control Board (CPCB)?

1. The NGT has been established by an Act whereas the CPCB has been created by an executive order of the Government.
2. The NGT provides environmental justice and helps reduce the burden of litigation in the higher courts whereas the CPCB promotes cleanliness of streams and wells, and aims to improve the quality of air in the country.

Which of the statements given above is/are correct

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer: B

Explanation

- The Central Pollution Control Board (CPCB), statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974.
- Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.
- It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.
- Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981,
- To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution,
- To improve the quality of air and to prevent, control or abate air pollution in the country.

- National Green Tribunal (NGT) is a specialised body set up under the National Green Tribunal Act (2010) for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- The NGT has the power to hear all civil cases relating to environmental issues and questions that are linked to the implementation of laws listed in Schedule I of the NGT Act.
- These include the following –
 - ✓ The Water (Prevention and Control of Pollution) Act, 1974;
 - ✓ The Water (Prevention and Control of Pollution) Cess Act, 1977;
 - ✓ The Forest (Conservation) Act, 1980;
 - ✓ The Air (Prevention and Control of Pollution) Act, 1981;
 - ✓ The Environment (Protection) Act, 1986;
 - ✓ The Public Liability Insurance Act, 1991;
 - ✓ The Biological Diversity Act, 2002.

4. In the context of the proposals to the use of hydrogen-enriched CNG (H-CNG) as fuel for buses in public transport, consider the following statements

1. The main advantage of the use of H-CNG is the elimination of carbon monoxide emissions.
2. H-CNG as fuel reduces carbon dioxide and hydrocarbon emissions.
3. Hydrogen up to one-fifth by volume can be blended with CNG as fuel for buses.
4. H-CNG makes the fuel less expensive than CNG.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 4 only
- D. 1,2,3 and 4

Answer: A

Explanation

- CNG is compressed natural gas.
- With natural gas mainly composed of methane, CNG emits less air pollutants – carbon dioxide, carbon monoxide, nitrogen oxides and particulate matter – than petrol or diesel.
- H-CNG is a blend of hydrogen and CNG, the ideal hydrogen concentration being 18%.
- Compared to conventional CNG, use of H-CNG can reduce emission of carbon monoxide up to 70%, besides enabling up to 5% savings in fuel, tests by the Automotive Research Association of India and Indian Oil Corporation Ltd (IOCL) have found.

- Physical blending of CNG and hydrogen involves a series of energy-intensive steps that would make H-CNG more expensive than CNG.

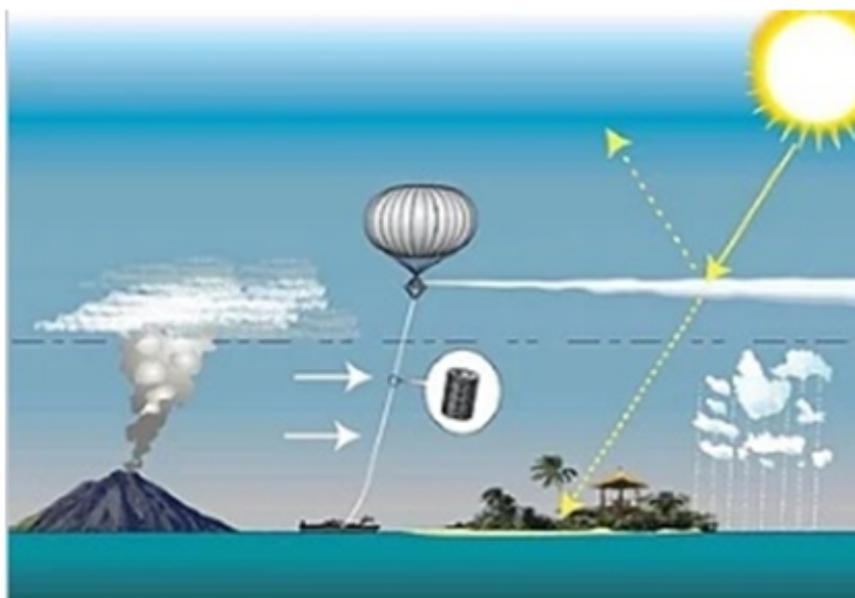
5. In the context of which of the following do some scientists suggest the use of cirrus cloud thinning technique and the injection of sulphate aerosol into stratosphere?

- A. Creating the artificial rains in some regions
- B. Reducing the frequency and intensity of tropical cyclones
- C. Reducing the adverse effects of the solar wind on the earth
- D. Reducing the global warming

Answer: D

Explanation

- Cirrus cloud thinning is a proposed form of climate engineering.
- Cirrus clouds are high cold ice that, like other clouds, both reflect sunlight and absorb warming infrared radiation.
- However, they differ from other types of clouds in that, on average, infrared absorption outweighs sunlight reflection, resulting in a net warming effect on the climate.
- Therefore, thinning or removing these clouds would reduce their heat trapping capacity, resulting in a cooling effect on Earth's climate.
- This could be a potential tool to reduce anthropogenic global warming.
- The ability of stratospheric aerosols to create a global dimming effect has made them a possible candidate for use in solar radiation management climate engineering projects to limit the effect and impact of climate change due to rising levels of greenhouse gases.
- Delivery of precursor sulfide gases such as sulfuric acid, hydrogen sulfide (H₂S) or sulfur dioxide (SO₂) by artillery, aircraft and balloons has been proposed.



6. Science & Technology

Click [here](#) to watch the following questions on YouTube

1. Which of the following is/are existing or proposed rocket launch stations in India?

1. Kulasekarapattinam

2. Sriharikota

3. Thumba

A. 2 only

B. 2 and 3 only

C. 1 and 2 only

D. 1, 2 and 3

Answer: D

Explanation

All the three are correct

- Thumba, Kerala: Sounding rockets launches
- Sriharikota, Andhra Pradesh: Launch missions for space or beyond the earth's atmosphere that cater to India's domestic scientific, military, weather, developmental and commercial needs as well as those of foreign customers
- Kulasekarapattinam, Tamil Nadu: It will mainly cater to launches of newly developed Small Satellite Launch Vehicle
 - ✓ People are protesting against land acquisition



2. Hope mission, UAE's first space mission, will be launched to study

- A. Moon
- B. Mars
- C. Mercury
- D. Climate Change on Earth

Answer: B

Explanation

- UAE's first mission to Mars (Hope Mission) was announced in 2015 with the aim of creating mankind's first integrated model of the Red planet's atmosphere
- It will orbit Mars to study the Martian atmosphere and its interaction with outer space and solar winds. Hope will collect data on Martian climate dynamics, which should help scientists understand why Mars' atmosphere is decaying into space

3. Committee headed by _____, has recently suggested, allowing the use of non-personal data, generated in India, by domestic companies and entities.

- A. BN Srikrishna
- B. Kris Gopalakrishnan
- C. C Rangarajan
- D. Uday Kotak

Answer: B

Explanation

- A government committee headed by Infosys co-founder Kris Gopalakrishnan has suggested that non-personal data generated in the country be allowed to be harnessed by various domestic companies and entities
- Non-personal data is any set of data which does not contain personally identifiable information. This in essence means that no individual or living person can be identified by looking at such data
- The committee has classified non-personal data into three main categories, namely
 - ✓ public non-personal data
 - ✓ community non-personal data and
 - ✓ private non-personal data

4. Which of the following defence equipment is correctly matched with its country of origin

1. Spike Missile : America
2. Mirage 2000 : Russia

3. Heron Drones : Israel

- A. 1 and 3 only
- B. 3 only
- C. 1 and 2 only
- D. 1, 2 and 3

Answer: B

Explanation

Only B is correct

- Spike Missile : Israel
- Mirage 2000 : France
- Heron Drones : Israel

5. 'Project Cheetah' of the Indian defence forces is associated with the

- A. S400 Missile Defence System
- B. Rafale Fighter Jets
- C. Armed Unmanned Aerial Vehicles
- D. Supersonic Cruise Missiles

Answer: C

Explanation

- Israeli-made Heron drones have been in service with the three defence wings for several years now
- The forces are also working towards inducting an armed version of the UAV, as well as upgrading the existing fleet into combat UAVs under the ambitious 'Project Cheetah' spearheaded by the Indian Air Force.