

UPSC Civil Services (Preliminary) Exam GS-I

Set-B (Explanations)

1. In which one of the following regions was Dhanyakataka, which flourished as a prominent Buddhist centre under the Mahasanghikas, located?

- (a) Andhra
- (b) Gandhara
- (c) Kalinga
- (d) Magadha

Explanation: (a)

- Dhanyakataka is a small town in Andhra Pradesh in southeastern India near present day Amaravati where Shakyamuni Buddha taught the Heart Essence form of the Kalachakra Dharma to the Shambala kings.
- Amaravati Dharanikota became the capital of the Kota chiefs, for the 3rd time in history (12th century). According to an inscription found in a temple at Velpuru in Guntur, Amaravati was described as follows:
 - “There is a city, named Sri Dhanyakataka, which is superior to the City of the Gods, and where the temple of Sambhu, named Amaresvara, is worshipped by the Lord of the Gods (Indra), where the God Buddha, worshipped by the creator, is quite close by and where there is a very lofty chaitya, well decorated with various sculptures.”, which also reveals that the stupa was in a good state of its existence.
- Hence, option (a) is correct.

Source:

<https://crda.ap.gov.in/APCRDADOCS/DataModuleFiles/History/01~10531.Historical%20timeline.pdf>
<http://tibetanbuddhistencyclopedia.com/en/index.php/Dhanyakataka>

2. With reference to ancient India, consider the following statements :

1. The concept of Stupa is Buddhist in origin.
2. Stupa was generally a repository of relics.
3. Stupa was a votive and commemorative structure in Buddhist tradition.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (b)

Origin of Stupa:

- The word Stupa is mentioned in the Rigveda, Atharvaveda, Vajasaneyi Samhita, Taittiriya Samhita, in the Panchavimsata Brahmana. Hence, statement 1 is not correct.
- Rigveda refers to a Stupa raised by the King Varuna above the forest in a place having no foundation. The word ‘stuka’ is also used in the same sense in Rigveda, probably by then anything raised on the ground like a heap/pile might have been known as Stupa.
- The practice of preserving the remains of an important personality below accumulated earth was long in existence. Buddhist art adopted this practice and the structure built over such a site was known as Stupa Hence, Statement 2 is correct.
- The Buddhist texts like the Avadana Satakam, Mahavadana and Stupavadanam mentions about the commemorative aspects of the Stupa even the Jaina literature like Raya Pasenaiya Sutta refers to it. Probably in the later period, due to the deep desire of the common mass to worship the lord for the sake of salvation, Stupa acquired its votive character as well. Hence, statement 3 is correct.
- Hence, option B is correct.

Source:

https://www.lkouniv.ac.in/site/writereaddata/siteContent/202004201518298907anitya_gaurav_aih_origin_and_development_of_stupa.pdf
<https://egyankosh.ac.in/bitstream/123456789/20150/1/Unit-26.pdf>
<https://timesofindia.indiatimes.com/city/patna/1200-yr-old-miniature-stupas-found-in-nalanda-district/articleshow/96954648.cms>

3. With reference to ancient South India, Korkai, Poompuhar and Muchiri were well known as
 - (a) capital cities
 - (b) ports
 - (c) centres of iron-and-steel making
 - (d) shrines of Jain Tirthankaras

Explanation: (b)

Korkai:

- Korkai was the port city of early Pandys situated on the banks of the Thamirabarani near Bay of Bengal.

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General Studies Paper-I

- Trade with Ganges Valley as well as ancient Roman civilizations flourished in the port city. "Periplus of the Erythrean Sea", the maritime guide book written in the first century AD mentions Korkai along with other port towns of Tamil Nadu.

Poompuhar:

- Poompuhar is a town in the Mayiladuthurai district in the southern Indian state of Tamil Nadu.
- It was once a flourishing ancient port city known as Kaveri Poompattinam, which for a while served as the capital of the Early Chola kings in Tamilakam.
- Puhar is located near the mouth of the Kaveri river, on the sea coast.

Muziris/Muchiri Port

- Kodungallur is a town and a municipality in the Thrissur district (Kerala) and was known in ancient times as Mahodayapuram, Shinkli, Muchiri, Muziris and Muyirikkode.
- The traders mention Kodungallur port in a lot of names. Muchiri, Makotai, Mahodayapuram, Mahodayapattanam, Muyirikkode etc are some, but the most popular name is the one called by Roman and Greek Traders, Muziris.
- Hence, option (b) is correct.

Source:

http://timesofindia.indiatimes.com/articleshow/93978009.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
<https://mayiladuthurai.nic.in/tourist-place/poompuhar/>
<http://kmb.kerala.gov.in/en/ports/kodungallur-port>
<https://www.drishitias.com/daily-updates/daily-news-analysis/important-facts-for-prelims-29th-september-2018>

4. Which one of the following explains the practice of Vattakirutal' as mentioned in Sangam poems?
- Kings employing women bodyguards.
 - Learned persons assembling in royal courts to discuss religious and philosophical matters
 - Young girls keeping watch over agricultural fields and driving away birds and animals
 - A king defeated in a battle committing ritual suicide by starving himself to death

Explanation: (d)

- Vattakirutal was a Tamil ritual of fasting till death. It was especially widespread during the Sangam age. The Tamil kings, in order to save their honour, and prestige, were prepared to meet their death facing North ('Vattakirutal') and never would they turn their back in battle.

- This was either done alone, or as a group with the supporters of the captured king.
- Hence, option (d) is correct.

Source:

https://books.google.co.in/books?id=mVdBeeiYxh4C&pg=PA138&lpg=PA138&dq=vattakirutal&source=bl&ots=pGLEGZEypI&sig=ACfU3U1SMewe5v3dbT_golba9Aq70VGj-Q&hl=en&sa=X&ved=2ahUKEwiiuv8v-wpf_AhVYT2wGHfQ5Du8Q6AF6BAgSEAM#v=onepage&q=vattakirutal&f=false

5. Consider the following dynasties:

- Hoysala
- Gahadavala
- Kakatiya
- Yadava

How many of the above dynasties established their kingdoms in early eighth century AD?

- Only one
- Only two
- Only three
- None

Explanation: (d)

Hoysalas:

- The Hoysala Empire was one of the powerful forces that ruled parts of southern India between the 10th and 14th centuries.
- The capital of the Hoysalas was initially located at Belur but was later moved to Halebidu.
- The reign of the Hoysala Empire led to the development of South Indian art, architecture, and religion, and its legacy lies mainly in the Hoysala architecture.

Gahadavala:

- Gahadavala dynasty, one of the many ruling families of north India on the eve of the Muslim conquests in the 12th–13th century.
- Its history, ranging between the second half of the 11th century and the mid-13th century, illustrates all the features of early medieval north Indian polity—dynastic hostilities and alliances, feudal state structure, absolute dependence on Brahmanical social ideology, and vulnerability in the face of external aggressions.

Yadavas and Kakatiyas

- The history of South India from the 13th to the 15th centuries presents two distinct phases: i) The beginning of the 13th century is marked by the disintegration of the Chola and the Chalukya empires. On their ruins emerged four independent kingdoms in this region. There were the Pandyas and the Hoysalas in the

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south (on the debris of the Chola power), the Kakatiyas and the Yadavas in the north of this region (in the Deccan as a result of the decline of the Chalukya power). These kingdoms lasted for more than a century.

- Hence, option (d) is correct.

Source:

<https://www.britannica.com/topic/Gahadavala-dynasty>
<https://www.egyankosh.ac.in/bitstream/123456789/73302/1/Unit-5.pdf>

6. With reference to ancient Indian History, consider the following pairs:

Literary work	Author
1. Devichandragupta	: Bilhana
2. Hammira-Mahakavya	: Nayachandra Suri
3. Milinda-panha	: Nagarjuna
4. Nitivakyamrita	: Somadeva Suri

How many of the above pairs are correctly matched?

- (a) Only one (b) Only two
 (c) Only three (d) All four

Explanation: (b)

Literary Work	Author
Devichandragupta	Vishakadatta
Hammira-Mahakavya	Naya Chandra Suri
Milinda-panha	Nagasena
Nitivakyamrita	Somadeva Suri

- Hence, option (b) is correct.

Source:

<https://artandculture.rajasthan.gov.in/content/dam/doitassets/art-and-culture/rori/pdf/publications.pdf>
Ancient India: R.S. Sharma : 104
http://www.ccras.nic.in/sites/default/files/viewpdf/jimh/BIIHM_1977/117%20to%20123.pdf
https://ignca.gov.in/Asi_data/44601.pdf

7. "Souls are not only the property of animal and plant life, but also of rocks, running water and many other natural objects not looked on as living by other religious sects."

The above statement reflects one of the core beliefs of which one of the following religious sects of ancient India?

- (a) Buddhism (b) Jainism
 (c) Shaivism (d) Vaishnavism

Explanation: (b)

- As Jains see it, all beings are animated by jiva, the soul. A modern-day Jain teacher, Gurudev Chitrabhanu, writes, "The universe is not for humanity alone; it is a field of evolution for all living beings. Life is sacred, irrespective of not only caste, color, creed, or nationality, but also species at all levels right down to the tiny ant or the humble worm."

- There are souls in nonmobile bodies, such as earth, water, fire, air, and plants—all of which have but one sense, the sense of touch. And there are souls in mobile bodies: the worm with two senses (touch and taste), the ant with three (touch, taste, and smell), the bee with four (touch, taste, smell, and sight), and the animal and human with five (touch, taste, smell, sight, and hearing).

- Hence, option (b) is correct.

Source:

<https://pluralism.org/jiva-the-souls-of-all-beings>

8. Who among the following rulers of Vijayanagara Empire constructed a large dam across Tungabhadra River and canal-cum-aqueduct several a kilometres long from the river to the capital city?

- (a) Devaraya I (b) Mallikarjuna
 (c) Vira Vijaya (d) Virupaksha

Explanation: (a)

- Deva Raya constructed a dam on Tungabhadra and irrigated cities and villages with canals from this dam.

- Hence, option (a) is correct.

Source:

<https://ijcrt.org/papers/IJCRT1134917.pdf>

9. Who among the following rulers of medieval Gujarat surrendered Diu to Portuguese?

- (a) Ahmad Shah (b) Mahmud Begarha
 (c) Bahadur Shah (d) Muhammad Shah

Explanation: (c)

- Early in the 16th century, the Sultan of Gujarat, Bahadur Shah, came under immense pressure when his kingdom was invaded by the second Mughal Emperor Humayun.

- At that juncture, he decided to remain on conciliatory terms with the Portuguese, who had arrived in India at the end of the 15th century, and were at the time an energetic and ambitious maritime power.

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General Studies Paper-I

- In 1534, the Shah signed the **Treaty of Bassein with the Portuguese, ceding Diu to the latter**, as well as other territories of his empire such as Vasai and the islands that today form Mumbai. The Portuguese obtained Daman from the Shah in 1559.
- **Hence, option (c) is correct.**

Source:

<https://indianexpress.com/article/explained/daman-diu-dadra-nagar-haveli-a-short-recent-history-6141034/>

10. By which one of the following Acts was the Governor General of Bengal designated as the Governor General of India?
- (a) The Regulating Act
 - (b) The Pitt's India Act
 - (c) The Charter Act of 1793
 - (d) The Charter Act of 1833

Explanation: (d)

Charter Act of 1833

- This Act was the final step towards centralisation in British India.
- It made the Governor-General of Bengal as the Governor General of India and vested in him all civil and military powers. Thus, the act created, for the first time, Government of India having authority over the entire territorial area possessed by the British in India. Lord William Bentick was the first Governor-General of India.
- **Hence, option (d) is correct.**

Source:

Laxmikanth

11. In essence, what does Due Process of Law' mean?
- (a) The principle of natural justice
 - (b) The procedure established by law
 - (c) Fair application of law
 - (d) Equality before law

Explanation: (a)

- Natural Justice implies fairness, reasonableness, equity and equality. Natural Justice is a concept of Common Law and it is the Common Law world counterpart of the American concept of 'procedural due process'.

- The principles of natural justice are firmly grounded under various Articles of the Constitution. With the introduction of the concept of substantive and procedural due process in Article 21 of the Constitution all that fairness which is included in the principles of natural justice can be read into Article 21 when a person is deprived of his life and personal liberty.
- **Hence, option (a) is correct.**

Source:

https://nios.ac.in/media/documents/SrSec338New/338_Introduction_To_Law_Eng/338_Introduction_To_Law_Eng_L6.pdf

12. Consider the following statements:

Statement-I: In India, prisons are managed by State Governments with their own rules and regulations for the day-to-day administration of prisons.

Statement-II: In India, prisons are governed by the Prisons Act, 1894 which expressly kept the subject of prisons in the control of Provincial Governments.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (a)

- 'Prisons/'persons detained therein' is a "State-List" subject under Entry 4 of List II of the Seventh Schedule to the Constitution of India.
- Administration and management of prisons and prisoners is the responsibility of respective State Governments who are competent to take appropriate action in this regard. **Hence, statement 1 is correct.**
- However, given the significance of prisons in the Criminal Justice System, the Ministry of Home Affairs has been providing regular guidance and support to the States and UTs on diverse issues relating to prison administration.
- Under Prison act 1894, which governs the prisons, management and administration of prison falls **in the domain of state governments. Hence statement 2 is correct.**

Therefore, both Statement-1 and Statement-2 are correct and Statement-2 is the correct explanation for Statement-1

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Source:

https://www.mha.gov.in/en/divisionofmha/Women_Safety_Division/prison-reforms

13. Which one of the following statements best reflects the Chief purpose of the 'Constitution' of a country?
- It determines the objective for the making of necessary laws.
 - It enables the creation of political offices and a government.
 - It defines and limits the powers of government.
 - It secures social justice, social equality and social security.

Explanation: (c)

- The **chief purpose of a constitution** is to establish the **fundamental principles, structure, and functions** of a government and to define the **rights and freedoms of individuals** within a country. Constitutions serve as the **supreme law of the land** and provide a **framework for governance, ensuring the balance of power, protecting individual rights, and guiding the functioning of the state.**
- Hence, option (c) is correct.

Source:

<https://www.india.gov.in/my-government/constitution-india>
<https://www.drishtiias.com/to-the-points/Paper2/preamble-to-the-indian-constitution>
<https://ncert.nic.in/textbook/pdf/keps201.pdf>

14. In India, which one of the following Constitutional Amendments was widely believed to be enacted to overcome the judicial interpretations of the Fundamental Rights?
- 1st Amendment
 - 42nd Amendment
 - 44th Amendment
 - 86th Amendment

Explanation: (a)

- 1st Constitutional Amendment Act, 1951:**
 - Issues involved in the cases included freedom of speech, acquisition of the Zamindari land, State monopoly of trade, etc
 - Added three more grounds of restrictions on freedom of speech and expression: public order, friendly relations with

foreign states and incitement to an offense. Also, it made the restrictions 'reasonable' and thus, justiciable in nature.

Hence, option (a) is correct.

Note: The question has been deleted by the commission.

Source:

<https://www.drishtiias.com/to-the-points/Paper2/major-constitutional-amendments-part-2>
<https://www.india.gov.in/my-government/constitution-india/amendments/constitution-india-forty-second-amendment-act-1976>

15. Consider the following organizations/bodies in India:
- The National Commission for Backward Classes
 - The National Human Rights Commission
 - The National Law Commission
 - The National Consumer Disputes Redressal Commission
- How many of the above constitutional bodies?
- Only one
 - Only two
 - Only three
 - All four

Explanation: (a)

- National Commission for Backward Classes (NCBC)** was initially constituted by the Central Govt by the National Commission for Backward Classes Act, 1993 and so far the Commission had been reconstituted 7 times up to 2016. The National Commission for Backward Classes Act, 1993 has been repealed through the National Commission for Backward Classes (Repeal) Act, 2018. The Commission has been accorded **Constitutional Status** and constituted through "The Constitution (One Hundred and Second Amendment) Act, 2018" Act.
- The **National Human Rights Commission (NHRC)** of India was established on 12 October, 1993. The **statute under which it is established is the Protection of Human Rights Act (PHRA), 1993** as amended by the Protection of Human Rights (Amendment) Act, 2006.
- The **National Consumer Disputes Redressal Commission (NCDRC)**, is a quasi-judicial commission in India which was set up in 1988 **under the Consumer Protection Act of 1986.**
- Law Commission of India** is a non-statutory body and is **constituted by a notification of the Government of India, Ministry of Law & Justice, Department of Legal Affairs** with a definite terms of reference to carry out research in the field of law and the Commission makes recommendations to the Government (in the form of Reports) as per its terms of reference.
- Hence, option (a) is correct.

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Rajya Sabha can not amend or reject finance bill (as also the case for Money bill). **Hence, statement 1 is not correct.**

- As a finance bill is a money bill so no joint sitting of the two houses is allowed with regard to a finance bill under Article 108. **Hence statement 3 is not correct.**

- However, the commission might have considered this statement to be correct.

18. Consider the following statements:

Once the Central Government notifies an area as a 'Community Reserve'

1. the Chief Wildlife Warden of the State becomes the governing authority of such forest
2. hunting is not allowed in such area
3. people of such area are allowed to collect non-timber forest produce
4. people of such area are allowed traditional agricultural practices

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Explanation: (b)

- **Section 36C of the WLP 1972 says:** The State Government may, where the community or an individual has volunteered to conserve wildlife and its habitat, declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.

- **Section 36D of the aforementioned act says:** The State Government shall constitute a Community Reserve management committee, which shall be the authority responsible for conserving, maintaining and managing the community reserve. **Hence, statement 1 is not correct.**

- **After a forest has been made into a community reserve:**

- People are allowed to hunt there. **Hence, statement 2 is correct.**
- People can collect non-timber forest produce. **Hence, statement 3 is correct.**

- People are not allowed to use it for agricultural practices such as jhum cultivation. **Hence, statement 4 is not correct.**

Source:

<https://www.downtoearth.org.in/news/forests/community-reserves-are-they-forest-department-s-backdoor-entry-into-north-east-india-85242>

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/community-forest-resource>

19. With reference to Scheduled Areas in India, consider the following statements:

1. Within a State, the notification of an area as Scheduled Area takes place through an Order of the President.
2. The largest administrative unit forming the Scheduled Area is the District and the lowest is the cluster of villages in the Block.
3. The Chief Ministers of the concerned States are required to submit annual reports to the Union Home Ministry on the administration of Scheduled Areas in the States.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (b)

- The term “**Scheduled Areas**” are those that are scheduled as such by a **Presidential Order under Paragraph 6 (1) of the Fifth Schedule**, which states: “In this Constitution, the expression ‘**Scheduled Areas**’ means such areas as the **President** may by order declare to be **Scheduled Areas**”
- **The specification of “Scheduled Areas” in relation to a State is by a notified order of the President, after consultation with the State Government concerned.** The same applies in the case of any alteration, increase, decrease, incorporation of new areas, or rescinding any Orders relating to “Scheduled Areas”. **Hence, statement 1 is correct.**
- The largest administrative unit forming the scheduled areas has been the district and the lowest the cluster of villages in the block. **Hence, statement 2 is correct.**
- The Governor of each State having Scheduled Areas therein shall annually, or whenever so required by the President, make a report to the President regarding the administration of the Scheduled Areas in that State and the executive power of the Union shall extend to the giving of directions to the State as to the administration of the said areas. **Hence, statement 3 is not correct.**

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Source:

<https://www.epw.in/journal/2019/44/alternative-standpoint/governors-and-fifth-schedule.html>
https://tribal.nic.in/downloads/CLM/CLM_Reports/6.pdf
<https://www.mea.gov.in/Images/pdf1/S5.pdf>
<https://tribal.nic.in/downloads/FRA/5.%20Land%20and%20Governance%20under%20Fifth%20Schedule.pdf>

20. Consider the following statements:

Statement-I: The Supreme Court of India has held in some judgements that the reservation policies made under Article 16(4) of the Constitution of India would be limited by Article 335 for maintenance of efficiency of administration.

Statement-II: Article 335 of the Constitution of India defines the term 'efficiency of administration'.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

- In the past seven decades of **constitutional jurisprudence on reservations**, the **Supreme Court of India** has consistently referred to the notions of “**efficiency**” and “**merit**,” while adjudicating the validity of various reservation policies.
- The Court has held in several judgments (**Indra Sawhney and Others v Union of India and Others 1993; M Nagaraj and Others v Union of India and Others 2006**) that the reservation policies made under **Article 16(4)1 of the Constitution** would be limited by Article 335 (2) which provides for “**maintenance of efficiency of administration**.” Hence, **statement 1 is correct**.
- This was done while the **Constitution does not define the term “efficiency of administration.”** Hence, **statement 2 is not correct**.
- **While considering the claims of the Scheduled Castes (SCs) and the Scheduled Tribes (STs) in the making of appointments to public services and posts. This was done while the Constitution does not define the term “efficiency of administration.”**
- Hence, **option (c) is correct**.

Source:

<https://www.epw.in/journal/2021/19/special-articles/reservations-efficiency-and-making-indian.html>

21. Consider the following statements:

Statement-I: India, despite having uranium deposits, depends on coal for most its electricity production.

Statement-II: Uranium, enriched to the extent at of least 60%, is required for the production of electricity.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

- In India, power is generated from conventional (**Thermal, Nuclear & Hydro**) and **renewable sources (Wind, Solar, Biomass etc)**.
 - However, **Major production of Electricity is achieved through coal**, a thermal power plant which is around **75% of the total power generation. Hence, statement-I is correct**.
- However, **uranium enriched to the extent of at least 60% is not required for the production of electricity**. Uranium enrichment is the process of increasing the **concentration of uranium-235**, which is the **fissile isotope of uranium that can sustain a nuclear chain reaction**.
 - For civilian nuclear power plants, uranium is typically enriched to about **3-5% of uranium-235**, which is sufficient for light water reactors that are commonly used for **electricity generation. Hence, statement-II is not correct**.
- Hence, **option (c) is correct**.

Source:

<https://coal.nic.in/en/major-statistics/generation-of-thermal-power-from-raw-coal>
<https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/introduction/what-is-uranium-how-does-it-work.aspx>

22. Consider the following statements:

Statement-I: Marsupials are not naturally found in India.

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Statement-II: Marsupials can thrive only in montane grasslands with no predators.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

- **Marsupials** are any members of the mammalian infraclass **Marsupialia**, characterised by **premature birth and continued development of the newborn while attached to the nipples on the mother's lower belly**.
- They are known as **pouched mammals, because the adult females have a marsupium, or pouch**.
 - Young marsupials (called joeys) do most of their early development outside of their mother's body, in a pouch.
- Marsupials are not **naturally found in India**. There are **over 330 species of marsupials**. Around two-thirds of them live in Australia. The other third live mostly in South America, where some interesting ones **include the flipper-wearing yapok, bare-tailed woolly opossum**. Hence, **statement-I is correct**.
- However, marsupials **can thrive in various habitats, not only in montane grasslands with no predators. They can live in any part of the forest habitat**.
 - For example, some marsupials live in **rainforests, deserts, woodlands, and savannas**. Hence, **statement-II is NOT correct**.
- Therefore, **option (c) is correct**.

Source:

<https://www.britannica.com/topic/list-of-marsupials-2060453>
<https://www.britannica.com/animal/marsupial>

23. 'Invasive Species Specialist Group' (that develops Global Invasive Species Database) belongs to which one of the following organizations?
- (a) The International Union for Conservation of Nature
 - (b) The United Nations Environment Programme
 - (c) The United Nations World Commission for Environment and Development
 - (d) The World Wide Fund for Nature

Explanation: (a)

- The **Invasive Species Specialist Group (ISSG)** is a **global network of scientific and policy experts on invasive species**, organized under the auspices of the Species Survival Commission (SSC) of the **International Union for Conservation of Nature (IUCN)**. Hence, **option (a) is correct**.
- **It was established in 1994**.
- The ISSG manages the **Global Invasive Species Database (GISD)**, which provides information on invasive alien species worldwide. The ISSG also maintains other online resources such as the **Aliens-L listserv, the Invasive Species Compendium, the Global Register of Introduced and Invasive Species, and the Environmental Impact Classification for Alien Taxa**.

Source:

<https://www.iucn.org/our-union/commissions/group/iucn-ssc-invasive-species-specialist-group>
<https://pipap.sprep.org/content/invasive-species-specialist-group>
[https://www.eea.europa.eu/data-and-maps/data-providers-and-partners/invasive-species-specialist-group-issg#:~:text=The%20Invasive%20Species%20Specialist%20Group,Conservation%20of%20Nature%20\(IUCN\).](https://www.eea.europa.eu/data-and-maps/data-providers-and-partners/invasive-species-specialist-group-issg#:~:text=The%20Invasive%20Species%20Specialist%20Group,Conservation%20of%20Nature%20(IUCN).)

24. Consider the following fauna:

1. Lion-tailed Macaque
2. Malabar Civet
3. Sambar Deer

How many of the above are generally nocturnal or most active after sunset?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (a)

- The **lion-tailed macaque is not a nocturnal animal**. It is an **arboreal and diurnal creature, they sleep at night in trees (typically, high in the canopy of rainforest)**. These macaques are territorial and very communicative animals. Hence, **1 is not correct**.
- Malabar civet is **primarily nocturnal**. It is a **small, carnivorous mammal that is native to the Western Ghats region of India**.
 - It has a solitary and secretive nature, **making it challenging to observe in the wild**. Its **nocturnal behavior helps it avoid predators and increases its chances of finding prey in the darkness**. Hence, **2 is correct**.

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- Sambar Deer is crepuscular and nocturnal but it is most active at dawn and dusk. **Hence, 3 is not correct.**
- **Hence, option (a) is correct.**

Source:

<https://animalia.bio/lion-tailed-macaque>
<https://www.hindustantimes.com/delhi/first-in-20-yrs-sambar-deer-seen-at-delhi-s-central-ridge/story-qTNVixAM9D0AS3Gs041wBP.html>
<https://animalia.bio/malabar-large-spotted-civet>

25. Which of the following organisms perform waggle dance for others of their kin to indicate the direction and the distance to a source of their food?
- (a) Butterflies (b) Dragonflies
 (c) Honeybees (d) Wasps

Explanation: (c)

- **Honeybees perform waggle dance to communicate the location of food sources or new nest sites to their colony mates. Hence, option (c) is correct.**
- The dance consists of a **straight run followed by a loop to one side and then another straight run followed by a loop to the other side**, forming a figure-eight pattern. The **angle of the straight run relative to gravity indicates the direction of the food source relative to the sun**, and the duration of the straight run indicates the distance of the food source from the hive.
- Young bees that were isolated from older foragers could perform waggle dance spontaneously, but they made more errors in encoding distance information than bees that had older role models.
 - This suggests that **honeybees learn from observing and practising with experienced dancers before they become proficient foragers themselves**. Therefore, **honeybees' waggle dance is both innate and learned, like human language or songbird communication**.

Source:

<https://www.sciencenews.org/article/bee-honeybees-waggle-dance-communicate-lessons-learn-hive>
<https://indianexpress.com/article/technology/science/robots-communicate-honeybee-waggle-dance-7960466/>

26. Consider the following statements:
1. Some mushrooms have medicinal properties.
 2. Some mushrooms have psycho-active properties.
 3. Some mushrooms have insecticidal properties.
 4. Some mushrooms have bioluminescent properties.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) Only three (d) All four

Explanation: (d)

- Mushrooms act as antibacterial, immune system enhancer and cholesterol lowering agents; additionally, they are important sources of bioactive compounds. As a result of these properties, some mushroom extracts are used to promote human health and are found as dietary supplements. **Hence, statement 1 is correct.**
- Magic mushrooms (psychoactive fungi) that grow in the United States, Mexico, South America, and many other parts of the world, contain psilocybin and psilocin, which are hallucinogens and are Class I controlled substances. **Hence, statement 2 is correct.**
- Fungi are living things, just like insects are, capable of evolving and adapting. Many synthetic pesticides have lost efficacy over the years because the target insects have just evolved and built-up tolerance to them. But like any other relationship between parasite and host, predator and prey, the fungus-based biopesticides have the ability to evolve right along with any adaptation the insects might come up with to hinder them. They are also nontoxic to humans and other wildlife. **Hence, statement 3 is correct.**
- A mushroom documentation project in the forests of Northeast India has revealed not only 600 varieties of fungi, but also led to a new discovery: a bioluminescent — or light emitting — variety of mushroom. **Hence, statement 4 is correct.**

Source:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4320875/#:~:text=Mushrooms%20act%20as%20antibacterial%2C%20immune,are%20found%20as%20dietary%20supplements>
<https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/psychoactive-fungus>
<https://science.howstuffworks.com/environmental/green-science/fungus-based-pesticides-might-be-green-solution-future.htm>
<https://indianexpress.com/article/explained/mystery-of-meghalayas-glowing-green-mushrooms-7059942/>

27. Consider the following statements regarding the Indian squirrels:
1. They build nests by making burrows in the ground.
 2. They store their food materials like nuts and seeds in the ground.
 3. They are omnivorous.

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How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (b)

- The Indian Squirrel nests at the top of the trees. **Hence, statement 1 is NOT correct.**
- Indian squirrels are known to cache their food, especially nuts and seeds, for later consumption. They might bury them under leaves or hide them in small crevices in trees. This behavior helps them survive during lean times when food sources are scarce. **Hence, statement 2 is correct.**
- Indian squirrels are **omnivores**. They feed mainly on nuts and fruits but will also eat seeds, insects, small mammals and reptiles, eggs, and even sometimes chicks of birds. **Hence, statement 3 is correct.**

Source:

<https://www.indiatoday.in/trending-news/story/squirrel-travels-from-india-to-scotland-in-a-3-week-ocean-trip-to-find-a-forever-home-1996018-2022-09-03>

<https://a-z-animals.com/animals/indian-palm-squirrel/>

28. Consider the following statements:

1. Some microorganisms can grow in environments with temperature above the boiling point of water.
2. Some microorganisms can grow in environments with temperature below the freezing point of water.
3. Some microorganisms can grow in highly acidic environment with a pH below 3.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (c)

- Hyperthermophilic ('superheat-loving') bacteria and archaea are found within high-temperature environments. **Hence, statement 1 is correct.**
- Microorganisms live in every part of the biosphere, and some of them are even capable of growing at low temperatures, including those below the freezing point. These microorganisms live in the sea or in high mountains. **Hence, statement 2 is correct.**
- Acidophiles are microorganisms that show optimal growth in highly acidic environments. They are of two types. The extreme acidophiles dwell in environments with a pH value <3, and

moderate acidophiles grow optimally in conditions having pH values ranging between 3 and 5. **Hence, statement 3 is correct.**

29. Which one of the following makes a tool with a stick to scrape insects from a hole in a tree or a log of wood?

- (a) Fishing cat
(b) Orangutan
(c) Otter
(d) Sloth bear

Explanation: (b)

- Researchers have spotted orangutans using sticks to extract seeds from fruit and scrape insects using a stick from a hole in a tree in the wild. **Hence, option (b) is correct.**

Source:

<https://www.inverse.com/science/ancient-human-stone-tool>

30. Consider the following:

1. Aerosols
2. Foam agents
3. Fire retardants
4. Lubricants

In the making of how many of the above are hydrofluorocarbons used?

- (a) Only one (b) Only two
(c) Only three (d) All four

Explanation: (c)

HFCs are entirely man-made. They are primarily produced for **use in refrigeration**, air-conditioning, **insulating foams** and **aerosol propellants**, with minor uses as solvents and for **fire protection**. **Hence, option (c) is correct.**

Source:

<https://www.ccacoalition.org/fr/slcp/hydrofluorocarbons-hfcs>

31. Consider the following statements:

1. Jhelum River passes through Wular Lake.
2. Krishna River directly feeds Kolleru Lake.
3. Meandering of Gandak River formed Kanwar Lake.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

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Explanation: (a)

- **Wular Lake is the 2nd largest fresh-water lake of Asia.** It is sited in the **Bandipora district in Jammu and Kashmir, India.** **Main source of water for Wular Lake is River Jhelum.** This lake also has a small island in its centre called the 'Zaina Lank'. **This island was constructed by King Zainul-Abi-Din. Hence, statement 1 is correct.**
 - Wular Lake is also said to be a remnant of Satisar Lake that existed in ancient times. The premises of this lake also form a popular sunset point.
- **Kolleru, one of the largest freshwater lakes in India,** (it was designated a sanctuary in October 1999) is situated between the **Krishna and West Godavari districts of the state.**
 - The Krishna River **does not directly feed the Kolleru Lake.** The Kolleru Lake is fed by two seasonal rivers, **Budameru and Tammileru,** which are tributaries of the Krishna River. Therefore, the **Krishna River indirectly feeds the Kolleru Lake through its tributaries. Hence, statement 2 is NOT correct.**
- **The meandering of Gandak River did not form the Kanwar Lake, which is a freshwater oxbow lake located in Begusarai district of Bihar, India.**
 - The Kanwar Lake was formed by a cut-off meander of an old channel of **Burhi Gandak River. The Burhi Gandak River flows parallel to the eastern side of the Gandak River** through an old channel. **Hence, Statement 3 is NOT correct.**

Source:

<https://ntr.ap.gov.in/district-profile/>
<https://www.downtoearth.org.in/blog/environment/kolleru-wildlife-sanctuary-faces-threats-52211>
<https://baramulla.nic.in/tourist-place/wular-lake/#:~:text=Main%20source%20of%20water%20for,that%20existed%20in%20ancient%20times.>
<https://www.britannica.com/place/Burhi-Gandak>
<https://www.indiamapped.com/rivers-in-india/burhi-gandak-river/>

32. Consider the following pairs:

Port	Well known as
1. Kamarajar Port	: First major port in India registered as a company
2. Mundra Port	: Largest privately owned port in India
3. Visakhapatnam	: Largest container port in Port India

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) All three pairs
- (d) None of the pairs

Explanation: (b)

- **Kamarajar Port, formerly known as Ennore Port, is the first major port in India registered as a company and is the only corporatized major port in India. Hence, pair 1 is correctly matched.**
 - It was declared as the **12th major port of India in March 1999 and incorporated as Ennore Port Limited under the Companies Act, 1956** in October 1999.
 - It is located on the **Coromandel Coast about 24 km north of Chennai Port, Tamil Nadu.**
- **Mundra Port is India's largest commercial port** located on the northern shores of the Gulf of Kutch near Mundra, Kutch district, Gujarat. It is owned and operated by **Adani Ports and Special Economic Zone Limited (APSEZ),** which is a part of Adani Group.
 - It was established in 1998 as a private sector port and became operational in October 2001. It handles various types of cargo such as containers, bulk, break-bulk, liquid, chemicals, automobiles, etc. **Hence, pair 2 is correctly matched.**
- **Visakhapatnam Port, located on the east coast of India in Andhra Pradesh, is not the largest container port in India.** It is one of the oldest and largest major ports in India, handling various types of cargo such as iron ore, coal, petroleum products, fertilisers, containers, etc.
 - **The largest container port in India is Jawaharlal Nehru Port Trust (JNPT),** located near Mumbai in Maharashtra. **Hence, pair 3 is NOT correctly matched.**

Source:

<https://ennoreport.gov.in/content/>
<https://www.marineinsight.com/know-more/10-major-ports-in-india/>
<https://origin-webapp.adaniports.com/newsroom/media-releases/adanis-mundra-port-handles-the-largest-ever-container-vessel-to-call-on-india#:~:text=Mundra%20Port%2C%20India's%20biggest%20commercial,containers%2C%20automobiles%20and%20crude%20oil>

33. Consider the following trees:

- 1. Jackfruit (*Artocarpus heterophyllus*)
- 2. Mahua (*Madhuca indica*)
- 3. Teak (*Tectona grandis*)

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How many of the above are deciduous trees?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (b)

- **Jackfruit are evergreen, latex-producing trees** of up to 25 m that are native to **India and Malaysia**, that have spread to Sri Lanka, China, South-east Asia and to tropical Africa. They are cultivated for the large fruits that can vary in shape and size, and for timber.
- **Mahua is a tropical deciduous fast-growing tree** and home to Madhya Pradesh, Jharkhand, Chhattisgarh, Odisha, Maharashtra, and Bihar.
- **Teak is a tropical hardwood tree and deciduous in nature.** It is native to **south and southeast Asia**, but is also cultivated in many other regions.
 - **Teak wood is valued for its durability and water resistance**, and is used for various purposes such as boat building, furniture, carving, and veneer
- **Hence, option (b) is correct.**

Source:

<https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.1832#:~:text=Jackfruit%20are%20evergreen%2C%20latex%2Dproducing,and%20size%2C%20and%20for%20timber>

<https://www.sciencedirect.com/science/article/pii/S2351989418300027#:~:text=The%20Mahua%20tree%2C%20M.,economically%20important%20tropical%20deciduous%20tree>

<https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.1832#:~:text=Jackfruit%20are%20evergreen%2C%20latex%2Dproducing,and%20size%2C%20and%20for%20timber>

<https://www.indiatimes.com/explainers/news/what-is-mahua-and-why-is-a-significant-part-of-the-tribal-community-in-india-585665.html>

34. Consider the following statements:

1. India has more arable area than China.
2. The proportion of irrigated area is more in India as compared to China.
3. The average productivity per hectare in Indian agriculture is higher than that in China.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (a)

- **Arable land is the land that can be used for growing crops.** Arable land is an important indicator of a country's agricultural potential and food security.
 - According to the **World Population Review, India has 156.1M Hectares of arable land, which is about 47% of its total land area.**
 - China has 119.5M Hectares of arable land, which is about 12% of its total land area. India has more arable land than China because it has a larger proportion of plains and river basins, which are suitable for cultivation. China has more mountainous and desert regions, which are not suitable for cultivation. **Hence, statement 1 is correct.**
- China's irrigated cropland is about 52% of its total cropland. This is one of the highest proportions of irrigated land in the world. India is another country with a high proportion of irrigated land, at about 30%. **Hence, statement 2 is not correct.**
- In agriculture, productivity can be measured by the **yield per unit area of land, which is the amount of crop produced per hectare or acre.**
 - **The average productivity per hectare in Indian agriculture is 2.4 tonnes for rice and 3 tonnes for wheat, while in China it is 6.7 tonnes for rice and 5 tonnes for wheat. Hence, statement 3 is NOT correct.**

Source:

<https://worldpopulationreview.com/country-rankings/arable-land-by-country>

<https://www.financialexpress.com/opinion/india-can-learn-agri-policy-lessons-from-china/1748398/>

<https://economictimes.indiatimes.com/news/international/world-news/with-rising-population-and-declining-arable-land-china-may-be-staring-at-a-major-food-crisis/articleshow/77942570.cms>

35. Which one of the following is the best example of repeated falls in sea level, giving rise to present-day extensive marshland?
- (a) Bhitarkanika Mangroves (b) Marakkanam Salt Pans
(c) Naupada Swamp (d) Rann of Kutch

Explanation: (d)

- The **Rann of Kutch** is a large salt marsh located in the Thar Desert in Gujarat, India.
- The present day **Kutch's shoreline and the sand dune deposition is the result of hundreds of years of rainless years around 5,000 years ago.**

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- Due to these severe climate conditions, the sea levels fell, leading to the formation of dunes along the coastline.

Source:

<https://timesofindia.indiatimes.com/c.ity/rajkot/100-rain-less-years-resulted-in-kutch-sand-dunes-5000-yrs-ago/articleshow/87989910cms>

36. Ilmenite and rutile, abundantly available in certain coastal tracts of India, are rich sources of which one of the following?
- (a) Aluminium (b) Copper
(c) Iron (d) Titanium

Explanation: (d)

■ India is endowed with large resources of heavy minerals which occur mainly along coastal stretches of the country. Heavy mineral sands comprise a group of seven minerals, viz, ilmenite, leucoxene (brown ilmenite), rutile, zircon, sillimanite, garnet and monazite. **Ilmenite (FeO.TiO₂) and rutile (TiO₂) are the two chief mineral sources of titanium. Hence, option (d) is correct.**

37. About three-fourths of world's cobalt, a metal required for the manufacture of batteries for electric motor vehicles, is produced by
- (a) Argentina (b) Botswana
(c) the Democratic Republic of the Congo
(d) Kazakhstan

Explanation: (c)

■ **The Democratic Republic of Congo (DRC)** is by far the world's largest producer of cobalt, accounting for roughly 70 percent of global production. **Hence, option (c) is correct.**

38. Which one of the following is a part of the Congo Basin?
- (a) Cameroon (b) Nigeria
(c) South Sudan (d) Uganda

Explanation: (a)

■ The Congo Basin spans across six countries—**Cameroon**, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon. **Hence, option (a) is correct.**

39. Consider the following statements:

1. Amarkantak Hills are at confluence of Vindhya and the Sahyadri Ranges.

2. Biligirangan Hills constitute the easternmost part of Satpura Range.
3. Seshachalam Hills constitute the southernmost part of Western Ghats.

How many of the statements given above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (d)

■ The Amarkantak Hill is a unique natural heritage area and is the meeting point of the Vindhya and the Satpura Range. **Hence, statement 1 is NOT correct.**

■ Biligirangan Hills is situated in south-eastern Karnataka while the Satpura Range rises in eastern Gujarat running east through the border of Maharashtra and Madhya Pradesh and ends in Chhattisgarh. **Hence, statement 2 is NOT correct.**

■ Seshachalam Hills are hilly ranges part of the Eastern Ghats in southern Andhra Pradesh while Western Ghats traverse the States of Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra and Gujarat. **Hence, statement 3 is NOT correct.**

■ **Hence, option (d) is correct.**

40. With reference to India's projects on connectivity, consider the following statements :

1. East-West Corridor under Golden Quadrilateral Project connects Dibrugarh and Surat.
2. Trilateral Highway connects Moreh in Manipur and Chiang Mai in Thailand via Myanmar.
3. Bangladesh-China-India-Myanmar Economic Corridor connects Varanasi in Uttar Pradesh with Kunming in China.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (d)

■ East-west Corridor connects Silchar to Porbandar. **Hence, statement 1 is NOT correct.**

■ India-Myanmar-Thailand Trilateral Highway connects the three countries from Moreh in India to Mae Sot in Thailand via Bagan in Myanmar. **Hence, statement 2 is NOT correct.**

■ The 2800 km BCIM corridor proposes to link Kunming in China's Yunnan province with Kolkata, passing through nodes such as

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Mandalay in Myanmar and Dhaka in Bangladesh before heading to Kolkata. **Hence, statement 3 is NOT correct.**

- **Hence, option (d) is correct.**

Source:

https://www.drishtiiias.com/daily-updates/daily-news-analysis/bcim-not-a-part-of-bri/print_manually

41. Consider the following statements:

Statement-I: Interest income from the deposits in Infrastructure Investment Trusts (InvITs) distributed to their investors is exempted from tax, but the dividend is taxable.

Statement-II: InvITs are recognized as borrowers under the 'Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002'.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect Statement-II is correct

Explanation: (d)

- Interest income that InvIT gets from its underlying SPVs and passes on to unitholders is taxed. The dividends that InvIT pays also get taxed. Both interest and dividend are taxed per the income tax slab. This is applicable where the InvIT has opted for taxation under section 115BAA of the Act. **Hence, statement 1 is not correct.**
- InvITs are recognized as borrowers under the SARFAESI Act 2002. The SARFAESI Act and the Recovery of Debts Act have been amended. Now, a pooled investment vehicle can be considered a borrower under these laws. This means that a debenture trustee for listed secured debt securities issued by an InvIT or REIT can use the protections and enforcement mechanisms under the SARFAESI Act. **Hence, statement 2 is correct.**

Source:

<https://www.moneycontrol.com/news/business/personal-finance/how-are-infrastructure-trusts-taxed-9902391.html>
<https://www.financialexpress.com/money/mutual-funds/long-term-capital-gains-in-debt-mutual-funds-set-to-go/3020418/>
<https://www.lexology.com/library/detail.aspx?g=2bccdafa-c7ba-4a60-9b9a-78e978ba2a2d>

42. Consider the following statements :

Statement-I: In the post-pandemic recent past, many Central Banks worldwide had carried out interest rate hikes.

Statement-II: Central Banks generally assume that they have the ability to counteract the rising consumer prices via monetary policy means.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (a)

- In the post-pandemic recent past, many Central Banks worldwide had carried out interest rate hikes to contain the post pandemic inflation. For Example, since May 2022, the Monetary Policy Committee (RBI) has gone for rate hikes many times. **Hence, statement 1 is correct.**
- The central banks generally are mandated with the task of containing the rising prices of the commodities. Central banks use monetary policy to manage economic fluctuations and achieve price stability. **Hence, Statement 2 is correct.**

Source:

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/us-fed-rate-hike>

43. Consider the following statements:

Statement-I: Carbon markets are likely to be one of the most widespread tools in the fight against climate change.

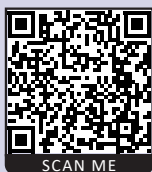
Statement-II: Carbon markets transfer resources from the private sector to the State.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

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Explanation: (b)

- Carbon markets, for years short of puff, **have at last become one of the most widespread tools in the fight against climate change.** By the end of 2021 more than 21% of the world's emissions were covered by some form of carbon pricing, up from 15% in 2020. **Hence, Statement 1 is correct.**
- Like taxes, carbon markets transfer resources from the private sector to the state. **Hence, statement 2 is correct.**
- However, Statement-II is not the correct explanation for Statement-I.

Source:

<https://www.economist.com/finance-and-economics/2022/05/26/carbon-markets-are-going-global>
<https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important>

44. Which one of the following activities of the Reserve Bank of India is considered to be part of 'sterilization'?
- (a) Conducting 'Open Market Operations'
 - (b) Oversight of settlement and payment systems
 - (c) Debt and cash management for the Central and State Governments
 - (d) Regulating the functions of Non-banking Financial Institutions

Explanation: (a)

- **Sterilisation** refers to the process by which the RBI takes away money from the banking system to neutralise the fresh money that enters the system. Classical sterilisation involves central banks conducting buy and sell operations in open markets. **Hence, option a is the correct answer.**
- For sterilisation, the RBI usually adopts the Market Stabilisation Scheme (MSS).
 - **Market Stabilisation Scheme (MSS):** Surplus liquidity arising from large capital inflows is absorbed through the sale of short-dated government securities and treasury bills.

Source:

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/rbi-interven-as-rupee-slides-to-new-low>
[https://www.drishtiiias.com/printpdf/rbi-keeps-policy-rates-unchanged#:~:text=Market%20Stabilisation%20Scheme%20\(MSS\)%3A&text=Surplus%20liquidity%20arising%20from%20large,account%20with%20the%20Reserve%20Bank.](https://www.drishtiiias.com/printpdf/rbi-keeps-policy-rates-unchanged#:~:text=Market%20Stabilisation%20Scheme%20(MSS)%3A&text=Surplus%20liquidity%20arising%20from%20large,account%20with%20the%20Reserve%20Bank.)

45. Consider the following markets:
1. Government Bond Market
 2. Call Money Market
 3. Treasury Bill Market
 4. Stock Market

How many of the above are included in capital markets?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Explanation: (b)

- Government bond market is a part of the Capital Market. Hence, option 1 is correct.
- Call money rate is the rate at which short term funds are borrowed and lent in the money market. **Hence, option 2 is not correct.**
- Treasury bills are short-term debt securities issued by the government. They have a maturity of up to one year and are considered to be the safest type of money market instrument. **Hence, option 3 is not correct.**
- The Stock Market is a part of the Capital Market. **Hence, option 4 is correct.**

Source:

Source: <https://www.pnbindia.in/downloadprocess.aspx?fid=Z4YiXOMrhBPelgRIelCLKQ==>
 Source: <https://economictimes.indiatimes.com/definition/call-money-rate>
 Source: https://www.drishtiiias.com/sambhav-daily-answer-writing-practice/papers/2023/money-market-instruments-reforms-money-market-market-penetration-mutual-funds-mutual-fund-gsppaer3-economy#:~:text=Treasury%20Bills%3A%20Treasury%20bills%20are,type%20of%20money%20market%20instrument.https://www.sebi.gov.in/sebi_data/docfiles/20615_t.htmlhttps://www.pnbindia.in/downloadprocess.aspx?fid=Z4YiXOMrhBPelgRIelCLKQ==

46. Which one of the following best describes the concept of 'Small Farmer Large Field'?
- (a) Resettlement of a large number of people, uprooted from their countries due to war, by giving them a large cultivable land which they cultivate collectively and share the produce
 - (b) Many marginal farmers in an area organize themselves into groups and synchronize and harmonize selected agricultural operations
 - (c) Many marginal farmers in an area together make a contract with a corporate body and surrender their land to the corporate body for a fixed term for which the corporate body makes a payment of agreed amount to the farmers
 - (d) A company extends loans, technical knowledge and material inputs to a number of small farmers in an area so that they produce the agricultural commodity required by the company for its manufacturing process and commercial production

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Tax & fiscal efforts	2.5
Demographic performance	12.5
Total	100

Source:

<https://pib.gov.in/PressReleasePage.aspx?PRID=1693868>

50. Consider the following infrastructure sectors:

- | | |
|-----------------------|-------------------------|
| 1. Affordable housing | 2. Mass rapid transport |
| 3. Health care | 4. Renewable energy |

On how many of the above does UNOPS Sustainable Investments in Infrastructure and Innovation (S3i) initiative focus for its investments?

- | | |
|----------------|--------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) All four |

Explanation: (c)

■ S3i has signed a landmark shareholders' agreement to invest in a 250-megawatt solar power plant located in Rajasthan. Collaborating with strategic and institutional investors, **S3i aims to invest in large-scale infrastructure projects in developing countries focusing on its mandated areas of affordable housing, renewable energy and health. Hence, option c is the correct answer.**

Source:

<https://pes.eu.com/press-releases/unops-s3i-ifu-and-acme-sign-landmark-investment-deal-for-a-250-megawatt-solar-park-in-rajasthan-india/>

51. With reference to Home Guards, consider the following statements :

- Home Guards are raised under the Home Guards Act and Rules of the Central Government.
- The role of the Home Guards is to serve as an auxiliary force to the police in maintenance of internal security.
- To prevent infiltration on the international border/coastal areas, the Border Wing Home Guards Battalions have been raised in some States.

How many of the above statements are correct?

- | | |
|---------------|--------------|
| (a) Only one | (b) Only two |
| (c) All three | (d) None |

Explanation: (b)

- 'Home Guards' is a voluntary force, first raised in India in December 1946, to assist the police in controlling civil disturbance and communal riots.
- Subsequently, the concept of the voluntary citizen's force was adopted by several States. In the wake of Chinese aggression in 1962, the Centre advised the States and Union Territories to merge their existing voluntary organisation into one uniform voluntary force known as Home Guards.
- Home Guards are raised under the Home Guards Act and Rules of the States/Union Territories, **NOT the Central Government. Hence statement 1 is NOT correct.**
- The role of Home Guards is to serve as an auxiliary Force to the Police in maintenance of internal security situations, help the community in any kind of emergency such as an air-raid, fire, cyclone, earthquake, epidemic etc., help in maintenance of essential services, promote communal harmony and assist the administration in protecting weaker sections, participate in socio-economic and welfare activities and perform Civil Defence duties. **Hence, statement 2 is correct.**
- Fifteen Border Wing Home Guards (BWHG) Battalions have been raised in the border States viz. Punjab (6 Bns.), Rajasthan (4 Bns.), Gujarat (2 Bns.) and one each Battalion for Meghalaya, Tripura and West Bengal to serve as an auxiliary to Border Security Force for preventing infiltration on the international border/coastal areas, guarding of VA/VPs and lines of communication in vulnerable area at the time of external aggression. **Hence statement 3 is correct.**

Source:

<https://dgfscdhg.gov.in/about-homeguard>

52. With reference to India, consider the following pairs :

Action	The Act under which it is covered
1. Unauthorized wearing of police or military uniforms	: The Official Secrets Act, 1923
2. Knowingly misleading of otherwise interfering with a police officer or military officer when engaged in their duties	: The Indian Evidence Act, 1872
3. Celebratory gunfire which can endanger the personal safety of others	: The Arms (Amendment) Act, 2019

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How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (b)

- The **Official Secrets Act was first enacted in 1923** and was retained after Independence. The law, applicable to government servants and citizens, provides the framework for dealing with espionage, sedition, and other potential threats to the integrity of the nation. The law makes spying, sharing 'secret' information, **unauthorised use of uniforms, (Under Section-6)** withholding information, interference with the armed forces in prohibited/restricted areas, among others, punishable offences. If guilty, a person may get up to 14 years' imprisonment, a fine, or both. **Hence, pair 1 is correctly matched.**
- **Under section 7 of Official Secrets Act 1923** No person in the vicinity of any prohibited place shall obstruct, knowingly mislead or otherwise interfere with or impede, any police officer, or any member of 21 [the Armed Forces of the Union] engaged on guard, sentry, patrol or other similar duty in relation to the prohibited place. **Hence pair 2 is NOT correctly matched.**
- **THE ARMS (AMENDMENT) ACT, 2019** says Whoever uses firearm in a rash or negligent manner or in celebratory gunfire so as to endanger human life or personal safety of others shall be punishable with an imprisonment for a term which may extend to two years, or with fine which may extend to rupees one lakh, or with both. **Hence pair 3 is correctly matched.**

Source:

1. <https://www.thehindu.com/news/national/all-you-need-to-know-about-the-official-secrets-act/article61575198.ece>
2. https://www.mha.gov.in/sites/default/files/ActAndRuleThe%20ArmsAct_17122019.pdf

53. Consider the following pairs :

<i>Regions often mentioned in news</i>	<i>Reason for being in news</i>
1. North Kivu and Ituri	: War between Armenia and Azerbaijan
2. Nagorno-Karabakh	: Insurgency in Mozambique
3. Kherson and Zaporizhzhia	: Dispute between Israel and Lebanon

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (d)

- **Kivu and Ituri** are related to the **Republic of Congo**. A war between the Republic of Congo and Rwanda started in 1994 with genocide of 800,000 Rwandan Tutsis and Hutus. **Hence, pair 1 is NOT correctly matched.**
- **Nagorno-Karabakh** is a region of **southwestern Azerbaijan**. It is used to refer to an autonomous oblast (province) of the former Azerbaijan Soviet Socialist Republic (S.S.R.) and to the Republic of Nagorno-Karabakh, a self-declared country whose independence is not internationally recognized. The old autonomous region occupied an area of about 1,700 square miles (4,400 square km), while the forces of the self-proclaimed Republic of Nagorno-Karabakh presently occupy some 2,700 square miles (7,000 square km). **Hence, pair 2 is NOT correctly matched.**
- **Kherson and Zaporizhzhia** are related to Ukraine and they are related to the dispute between **Ukraine and Russia**. **Hence, pair 3 is NOT correctly matched.**

Source:

- <https://www.drishtilias.com/daily-updates/daily-news-analysis/international-relation>
- <https://www.easterncongo.org/about-drc/history-of-the-conflict/>
- <https://www.britannica.com/place/Nagorno-Karabakh>

54. Consider the following statements :

Statement-I: Israel has established diplomatic relations with some Arab States.

Statement-II: The 'Arab Peace Initiative' mediated by Saudi Arabia was signed by Israel and Arab League.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

- Egypt and Jordan are the only two Arab countries that have formal diplomatic relations with Israel, though some other Arab countries, like Saudi Arabia and Morocco, have reportedly had back-channel communications with it for years. **Hence statement 1 is correct.**
- Since the 1970s Saudi Arabia had exercised a policy of regional coordination among Middle Eastern states, and between them and the United States.

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- The special position that Saudi Arabia has occupied over the last few decades in Arab-Israeli affairs reflects the Saudi kingdom's role as regional coordinator.
- The analysis revolves around the Saudi initiative for peace between Arab parties and Israel in the 1980s ("The Fahd Plan" leading up to "The Fez resolutions"-1981-1982) and in the beginning of the twenty-first century ("The Abdullah initiative" leading up to "The Arab peace initiative", 2002-2007). **However, Israel has not officially signed the initiative. Hence statement 2 is not correct.**

Some other initiatives are as follows,

- **Abraham Accord:** The Abraham Accord between Israel, the United Arab Emirates and Bahrain is mediated by the USA.
 - It is the first Arab-Israeli peace deal in 26 years.
 - As per the agreements, the UAE and Bahrain will establish Embassies and exchange ambassadors.
 - Working together with Israel across a range of sectors, including tourism, trade, healthcare and security.
 - The Abraham Accords also open the door for Muslims around the world to visit the historic sites in Israel and to peacefully pray at Al-Aqsa Mosque in Jerusalem, the third holiest site in Islam.
 - In the Islamic tradition, the Kaaba in Mecca is considered the holiest site, followed by the Prophet's Mosque in Medina, and Al-Aqsa Mosque in Jerusalem.
- **I2U2 Initiative:** I2U2 was initially formed in October, 2021 following the Abraham Accords between Israel and the UAE, to deal with issues concerning maritime security, infrastructure and transport in the region.
- At that time, it was called the 'International Forum for Economic Cooperation'.

That was referred to as the 'West Asian Quad'.

Source:

<https://arabcenterdc.org/resource/egyptian-and-jordanian-relations-with-israel-under-strain/>
<https://www.jstor.org/stable/40593283>
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/i2u2-initiative>

55. Consider the following pairs with regard to sports awards:

- | | | |
|------------------------------------------|---|----------------------------------------------------------------------------------------------------------------|
| 1. Major Dhyan Chand
Khel Ratna Award | : | For the most spectacular
and outstanding
performance by a
sportsman over period
of last four years |
|------------------------------------------|---|----------------------------------------------------------------------------------------------------------------|

- | | | |
|-----------------------------------------|---|--------------------------------------------------------------------------------------|
| 2. Arjuna Award | : | For the lifetime
achievement by
sportsman |
| 3. Dronacharya Award | : | To honour eminent
coaches who have
successfully trained
sportsmen or teams |
| 4. Rashtriya Khel
Protsahan Puraskar | : | To recognize the
contribution made by
sportsmen even after
their retirement |

How many of the above pairs are correctly matched?

- | | |
|----------------|--------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) All four |

Explanation: (b)

- The **Rajiv Gandhi Khel Ratna Award** has been renamed as the **Major Dhyan Chand Khel Ratna Award**. The now renamed Major Dhyan Chand Khel Ratna award comes with a cash prize of Rs 25 lakh. It is the highest sporting award given by the Ministry of Youth Affairs and Sports for the spectacular and most outstanding performance in the field of sports by a **sportsman over a period of four years. Hence, pair 1 is correctly matched.**
- **Arjuna award** was instituted in 1961 by the Government of India to recognise outstanding achievement in national sports events. It is given for good performance over a period of previous four years and showing qualities of leadership, sportsmanship and a sense of discipline. **Hence, pair 2 is NOT correctly matched.**
- **Dronacharya award** was instituted in 1985 by the Government of India to recognise excellence in sports coaching. It is given to coaches for doing outstanding and meritorious work on a consistent basis and enabling sportsmen to excel in International events. **Hence, pair 3 is correctly matched.**
- **Rashtriya Khel Protsahan Puraskar** was instituted in the year 2009. It is given to corporate entities (both in private and public sector), sports control boards, NGOs including sports bodies at the State and National level who have played a visible role in the area of sports promotion and development. **Hence, pair 4 is NOT correctly matched.**

Source:

<https://www.drishtiiias.com/daily-news-analysis/national-sports-awards-2021>

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Explanation: (d)

- In the last couple of years, Africans witnessed a series of military coups. Most of the recent military takeovers have taken place in West Africa, but the trend threatens to spread wider.
- In West Africa, the cycle of coups began in **Chad**. **Mali** has witnessed two military coups within a span of 18 months. The last coup took place in August 2020.
- In 2021, the military in **Sudan** ended its uneasy cohabitation with the civilian government by staging a coup.
- In 2021, the **Guinean** military's overthrow of President Alpha Condé was an outcome of autocratic overreach, economic mismanagement, and eroding democratic norms which points to the failure of regional bodies and international partners to anticipate and respond to an evolving coup playbook.
- Hence, for their successful coup, they are in the news. **Hence option (d) is correct.**

Source:

<https://frontline.thehindu.com/world-affairs/a-series-of-coups-in-west-africa-mali-guinea-burkina-faso/article38430184.ece>

59. Consider the following heavy industries:

1. Fertilizer plants
2. Oil refineries
3. Steel plants

Green hydrogen is expected to play a significant role in decarbonizing how many of the above industries?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (c)

Green Hydrogen:

- **Hydrogen** is a key industrial fuel that has a variety of applications including the production of ammonia (a key fertiliser), steel, refineries and electricity.
- However, all of the hydrogen manufactured now is the so-called '**black or brown**' hydrogen because they are **produced from coal**.
- But when electric current is passed through water, it splits it into elemental oxygen and hydrogen through electrolysis. And if the electricity used for this process comes from a renewable source like wind or solar then the hydrogen thus produced is referred to as **green hydrogen**.

Need for Producing Green Hydrogen:

- Green hydrogen in particular is one of the cleanest sources of energy with close to zero emission. It can be used in fuel cells

for cars or in energy-guzzling industries like **fertilizers and steel manufacturing**.

- Green Hydrogen can aid the desulfurisation of crude oil, without the output of CO₂ into the atmosphere hence it can provide a clean, on-site green hydrogen supply which will decarbonise the refining process and reduce emissions.
- **Hence option (c) is correct.**

Source:

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/national-green-hydrogen-mission-1#:~:text=Green%20hydrogen%20in%20particular%20is,like%20fertilizers%20and%20steel%20manufacturing.>

60. Consider the following statements about G-20:

1. The G-20 group was originally established as a platform for the Finance Ministers and Central Bank Governors to discuss the international economic and financial issues.
2. Digital public infrastructure is one of India's G-20 priorities.

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

Explanation: (c)

The G20:

- It was founded in 1999 after the Asian financial crisis as a forum for the Finance Ministers and Central Bank Governors to discuss global economic and financial issues. **Hence statement 1 is correct.**
- It was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of **2007, and, in 2009.**
- The G20 Summit is held annually, under the leadership of a rotating Presidency.
- It is initially focused largely on broad macroeconomic issues, but it has since expanded its agenda to include trade, sustainable development, health, agriculture, energy, environment, climate change, and anti-corruption.

Digital Public Infrastructure (DPI):

- It is a shared means to many ends. It is a critical enabler of digital transformation and is helping to improve public service delivery at scale.
- Designed and implemented well, it can help countries achieve their national priorities and accelerate the Sustainable Development Goals.

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- **The Ministry of Electronics & Information Technology (MeitY), Government of India** has partnered with the **United Nations Development Programme (UNDP)** to drive collective action on digital public infrastructure during India's **G20 Presidency**. Hence, **statement 2 is correct**.

Source:

<https://www.g20.org/en/about-g20/#:~:text=Inception%20of%20G20,global%20economic%20and%20financial%20issues>
<https://www.undp.org/news/inspiring-collective-action-digital-india-sets-stage-g20>

61. With reference to the Indian History, Alexander Rea, A. H. Longhurst, Robert Sewell, James Burgess and Walter Elliot were associated with
- archaeological excavations
 - establishment of English Press in Colonial India
 - establishment of Churches in Princely States
 - construction of railways in Colonial India

Explanation: (a)

- **Alexander Rea, a British archaeologist** who worked in India, was known for unearthing a treasure of over 9,000 objects in Adichanallur in 1903-04.
- **A. H. Longhurst** was an archaeologist associated with the excavation in Chandraketugarh, Bengal.
- **Robert Sewell:** Robert Sewell (1845 – 1925) was a collector and magistrate in Madras Presidency in colonial India. Like many civil servants turned Indologists of those times, he was a scholar in history. Also in charge for the then archeology department.
- **James Burgess:** James Burgess was the founder of The Indian Antiquary in 1872 and an important archaeologist of India in the 19th century.
- **Walter Elliot:** He was a Scottish civil servant in India (based in Madras), archaeologist, numismatist and collector. He excavated at Amaravati in 1845. Some of his excavated pieces remain to this day in the collections of the Govt. Museum at Madras (Chennai).

Source:

<https://www.thehindu.com/news/national/tamil-nadu/a-golden-civilisation-beckons-from-underground-at-adichanallur/article65765364.ece>
<https://indianexpress.com/article/lifestyle/destination-of-the-week/the-city-that-never-was-4531886/>
<https://www.jstor.org/stable/25189536>
<https://hampi.in/robert-sewell>

62. Consider the following pairs :

Site	Well known for
1. Besnagar	: Shaivite cave shrine
2. Bhaja	: Buddhist cave shrine
3. Sittanawasal	: Jain cave shrine

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three
- None

Explanation: (b)

- The Heliodorus pillar is a stone column that was erected around 113 BCE in central India in Besnagar (near Vidisha, Madhya Pradesh). The pillar was called the **Garuda**-standard by Heliodorus, referring to the deity Garuda. Hence, **1 is incorrect**.
- **Bhaja Caves** are a group of 22 rock-cut caves dating back to the 2nd century BC located in the city of Pune, India. The caves are 400 feet above the village of Bhaja, on an important ancient trade route running from the Arabian Sea eastward into the Deccan Plateau (the division between North India and South India).
- The inscriptions and the cave temple are protected as a Monument of National Importance, by the Archaeological Survey of India per Notification No. 2407-A. It belongs to the **Early Buddhist schools** in Maharashtra. The caves have a number of stupas, one of their significant features. Hence, **2 is correct**.
- Sittanavasal Caves (Arivar Koil): Located 16 km northwest of Pudukkottai town in Tamil Nadu, these famous rock-cut caves are known for the paintings in the **Jain temples**. Hence, **3 is correct**.

Source:

<https://www.drishtiiias.com/to-the-points/paper1/rock-art-part-2>
<https://www.drishtiiias.com/images/pdf/sr.%20secondary%20history.pdf>
<http://www.mysteryofindia.com/2015/03/bhaja-caves-rock-cut-buddhist-temple.html>

63. Consider the following statements :

Statement-I : 7th August is declared as the National Handloom Day.

Statement-II : It was in 1905 that the Swadeshi Movement was launched on the same day.

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Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.
- (c) Statement-I is correct but Statement-II is incorrect.
- (d) Statement-I is incorrect but Statement-II is correct.

Explanation: (a)

- **National Handloom Day is observed every year on 7th August** with the objective of honouring the handloom weavers and creating awareness about the importance of handloom industry in the social development of the nation and to promote handloom industry. **Hence, statement 1 is correct.**
- National Handloom Day is observed every year on 7th August with the objective of honouring the handloom weavers and creating awareness about the importance of handloom industry in the social development of the nation and to promote handloom industry.
- **August 7 was designated to celebrate National Handloom Day to memorialize the 'Swadeshi' Movement.** Therefore, there is a strong connection between National Handloom Day and the Swadeshi Movement. **Hence, statement 2 is correct.**

Source:

<https://www.drishtiiias.com/state-pcs-current-affairs/five-day-handloom-festival#:~:text=It%20may%20be%20mentioned%20that,and%20to%20promote%20handloom%20industry.>

64. Consider the following statements in respect of the National Flag of India According to the Flag Code of India, 2002 :

Statement-I: One of the standard sizes the National Flag of India of 600 mm × 400 mm.

Statement-II: The ratio of the length to the height (width) of the Flag shall be 3:2.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (d)

The standard sizes of national flag shall be as follows:

1	6300 × 4200
2	3600 × 2400
3	2700 × 1800
4	1800 × 1200
5	1350 × 900
6	900 × 600
7	450 × 300
8	225 × 150
9	150 × 100

■ **Hence, statement 1 is incorrect.**

■ The National Flag shall be rectangular in shape. The ratio of the length to the height (width) of the flag shall be 3:2. **Hence, statement 2 is correct.**

Source:

https://www.mha.gov.in/sites/default/files/flagcodeofindia_070214.pdf
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/flag-code-of-india>

65. Consider the following statements in respect of the Constitution Day :

Statement-I: The Constitution Day is celebrated on 26th November every year to promote constitutional values among citizens.

Statement-II: On 26th November, 1949, the Constituent Assembly of India set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a Draft Constitution of India.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

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Explanation: (c)

- It is celebrated on 26th November every year. It is also known as National Law Day. On this day in 1949, the Constituent Assembly of India formally adopted the Constitution of India that came into force on 26th January 1950. **Hence, statement 1 is correct.**
- On 29 August, 1947, the Constituent Assembly set up a Drafting Committee under the Chairmanship of Dr. B.R. Ambedkar to prepare a Draft Constitution for India. **Hence, statement 2 is incorrect.**
- On 13 December 1946, the Constituent Assembly formally commenced its task of framing the Constitution of India. Jawaharlal Nehru moved the Objectives Resolution, which aimed to declare India as an Independent Sovereign Republic and create a Constitution to govern its future. The Resolution established general principles to guide the work of the Constituent Assembly. On January 22, 1947, the Constituent Assembly adopted the Resolution.

Source:

<https://loksabha.nic.in/constituent/facts.html#:~:text=On%2029%20August%2C%201947%2C%20the,a%20Draft%20Constitution%20for%20India.>
<https://www.constitutionofindia.net/stages-of-constitution-making/>
<https://www.drishtias.com/daily-updates/daily-news-analysis/constitution-day-3#:~:text=It%20is%20celebrated%20on%2026,force%20on%2026th%20January%201950.>

66. Consider the following statements:

Statement-I: Switzerland is one of the leading exporters of gold in terms of value.

Statement-II: Switzerland has the second largest gold reserves in the world.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

Statement 1 is correct: Switzerland is one of the leading exporters of gold in terms of value.

Switzerland's gold exports amounted to a value of nearly 87 billion U.S. dollars in 2021. Switzerland is consistently the world's leading gold exporting country based on value.

In addition to being the largest exporter of gold based on value, Switzerland is also consistently the largest importer of gold based on value in the world. This can be explained by the fact that Switzerland refines some 70 percent of the world's gold: Switzerland imports unrefined gold, and exports it in its refined form.

Statement 2 is incorrect:

With 1,040 tonnes of gold, the Swiss National Bank (SNB) has the seventh largest gold reserves in the world.

Source:

<https://www.statista.com/statistics/1318077/switzerland-gold-export-value/>
https://www.swissinfo.ch/eng/politics/gold-reserves_swiss-love-affair-with-gold-could-heat-up-again/41101844

67. Consider the following statements:

Statements-I: Recently, the United States of America (USA) and the European Union (EU) have launched the 'Trade and Technology Council'.

Statement-II: The USA and the EU claim that through this they are trying to bring technological progress and physical productivity under their control.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

■ **Recently, the United States of America (USA) and the European Union (EU) have launched the Trade and Technology Council'.**

■ The EU-US Trade and Technology Council serves as a forum for the United States and European Union to coordinate approaches to key global trade, economic, and technology issues and to deepen transatlantic trade and economic relations based on these shared values. It was established during the EU-US Summit on 15 June 2021 in Brussels. **Hence, statement 1 is correct.**

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General Studies Paper-I

- US and EU discussed TTC work, with a focus on issues such as artificial intelligence, semiconductors and information and communication technology services.
- Through the Council, the EU and the US are working together to:
 - Ensure that trade and technology serve societies and economies, while upholding our common values
 - Strengthen their technological and industrial leadership
 - ◆ Expand bilateral trade and investment
- Hence, statement 2 is not correct.

Source:

<https://www.thehindu.com/sci-tech/technology/us-eu-plan-ai-artificial-intelligence-road-map-upcoming-trade-technology-council-meeting/article66123329.ece>
https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/stronger-europe-world/eu-us-trade-and-technology-council_en#:~:text=At%20its%20inaugural%20meeting%20on,Export%20controls

68. Consider the following statements :

Statement-I: India accounts for 3.2% of global export of goods.

Statement-II: Many local companies and some foreign companies operating in India have taken advantage of India's 'Production-linked Incentive' scheme.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (d)

- According to the recent WTO'S Global Trade Outlook and Statistics report, India accounts for **1.8 % of global exports** of goods. Hence, statement 1 is not correct.
- The 'Production Linked Initiative' (PLI) scheme offers companies incentives on incremental sales from products manufactured in India. It aims to attract foreign companies to set up units in India while encouraging local companies to expand their manufacturing units, generate more employment, and reduce the country's reliance on imports. Hence, Statement 2 is correct.

Source:

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/production-linked-incentive-pli-scheme-for-textiles-sector>
https://www.wto.org/english/res_e/booksp_e/trade_outlook23_e.pdf
<https://pib.gov.in/PressReleasePage.aspx?PRID=1593704>

69. Consider the following statements :

The 'Stability and Growth Pact' of the European Union is a treaty that

1. limits the levels of the budgetary deficit of the countries of the European Union
2. makes the countries of the European Union to share their infrastructure facilities
3. enables the countries of the European Union to share their technologies

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (a)

- The Stability and Growth Pact is a political agreement that sets limits on the fiscal deficits and public debt of the Member States of the European Monetary Union (EMU). Hence, statement 1 is correct.
- These guidelines are intended to ensure sound management of public finances within the EMU in order to prevent one Member State's irresponsible budgetary policies from spilling over and undermining the economic stability of the entire euro area
- The European Union Stability and Trade Pact does not make any provision related to sharing of infrastructure and technology. Hence, statements 2 and 3 are not correct.

Source:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1485161789433&uri=CELEX:52015DC0012>
<https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp47.pdf>
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:l25067>

70. Consider the following statements :

1. Recently, all the countries of the United Nations have adopted the first-ever compact for international migration, the 'Global Compact for Safe, Orderly and Regular Migration (GCM)'.

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2. The objectives and commitments stated in the GCM are binding on the UN member countries.
3. The GCM addresses internal migration or internally displaced people also in its objectives and commitments.

How many of the above statements are

- (a) Only one (b) Only two
(c) All three (d) None

Explanation: (d)

- In September 2016, with Europe overwhelmed by waves of migrants from Africa and West Asia, all 193 UN member states adopted New York Declaration for Refugees and Migrants for a comprehensive approach to human mobility and enhanced cooperation at the global level leading to the adoption of a global compact in 2018.
- The New York Declaration included a set of commitments for refugees and migrants, and elements towards the achievement of a Global Compact on Refugees and a Global Compact for Safe, Orderly and Regular Migration.
- Recently **Austria announced that it would not sign the Global Compact on Migration**, criticising its pro-migration approach, which represented a danger to Austria's national security. **Hence, statement 1 is not correct.**
- The global compact is non-legally binding. **Hence, Statement 2 is not correct.**
- The Global Compact for Safe, Orderly and Regular Migration is the world's first, intergovernmental negotiated agreement covering **all dimensions of international migration** in a holistic and comprehensive manner. **Hence, statement 3 is not correct.**

Source:

<https://www.ohchr.org/en/migration/new-york-declaration-refugees-and-migrants#:~:text=The%20text%20of%20the%20New,for%20international%20human%20rights%20law.>
[https://www.drishtiiias.com/daily-updates/daily-news-analysis/global-compact-on-migration#:~:text=Global%20Compact%20for%20Migration%20\(GCM\)&text=The%20compact%20has%2023%20objectives,compact%20is%20non%2Dlegally%20binding](https://www.drishtiiias.com/daily-updates/daily-news-analysis/global-compact-on-migration#:~:text=Global%20Compact%20for%20Migration%20(GCM)&text=The%20compact%20has%2023%20objectives,compact%20is%20non%2Dlegally%20binding)

71. Consider the following countries :

1. Bulgaria
2. Czech Republic
3. Hungary
4. Latvia
5. Lithuania
6. Romania

How many of the above-mentioned countries share a land border with Ukraine?

- (a) Only two (b) Only three
(c) Only four (d) Only five

Explanation: (a)

- As per the map given below, only Hungary and Romania share their land borders with Ukraine.



- Hence, option A is correct.

Source:

<https://cdn.britannica.com/82/183782-050-D2CE9388/World-Data-Locator-Map-Ukraine.jpg>
<https://www.drishtiiias.com/daily-news-analysis/elections-in-ukraine>
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/one-year-of-russia-ukraine-conflict>

72. With reference to the Earth's atmosphere, which one of the following statements is correct?

- (a) The total amount of insolation received at the equator is roughly about 10 times of that received at the poles.
- (b) Infrared rays constitute roughly two-thirds of insolation.
- (c) Infrared waves are largely absorbed by water vapour that is concentrated in the lower atmosphere.
- (d) Infrared waves are a part of visible spectrum of electromagnetic waves of solar radiation.

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Explanation: (c)

- The **earth's surface receives most of its energy in short wavelengths**. The energy received by the earth is known as incoming solar radiation which in short is termed as **insolation**.
- The atmosphere is largely transparent to shortwave solar radiation. The incoming solar radiation passes through the atmosphere before striking the earth's surface. **Within the troposphere water vapour, ozone and other gases absorb much of the near infrared radiation**.
- Hence, **statement (c) is correct**.

Source:

<https://ncert.nic.in/ncerts/l/kegy209.pdf>

73. Consider the following statements:

Statement-I: The soil in tropical rain forests is rich in nutrients.

Statement-II: The high temperature and moisture of tropical rain forests cause dead organic matter in the soil to decompose quickly.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (d)

- Contrary to the belief that all that vegetation, warmth, and moisture that the soil must be very rich, **the soil in tropical rainforests is very poor. Hence, statement 1 is not correct**.
- The **high temperature and moisture of tropical rainforests cause dead organic matter in the soil to decompose more quickly** than in other climates, thus releasing and losing its nutrients rapidly.
- The high volume of rain in tropical rainforests washes nutrients out of the soil more quickly than in other climates. **Hence, statement 2 is correct**.
- If the soil is so poor in tropical rainforests, how does such a dense array of shrubs and trees grow there? - On the ground of the rainforest, there is a thick layer of quickly decaying plants and animals. Nutrients are washed by the heavy rains almost directly from the rotting surface material into the trees without entering the soil much.

Source:

West Texas A&M University:

<https://www.wtamu.edu/~cbaird/sq/2013/07/12/what-makes-the-soil-in-tropical-rainforests-so-rich/#:~:text=On%20the%20ground%20of%20the,without%20entering%20the%20soil%20much.>

74. Consider the following statements:

Statement-I: The temperature contrast between continents and oceans is greater during summer than in winter.

Statement-II: The specific heat of water is more than that of land surface.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (d)

- The specific heat is the property of a substance which determines the change in the temperature of the substance (undergoing no phase change) when a given quantity of heat is absorbed (or rejected) by it.
- The temperature contrast between continents and oceans is greater during summer than in winter because land heats up faster than water. **Hence, statement-I is correct**.
 - Land and water heat up and cool down at different rates, known as their "specific heat". In the summer, land heats up faster and to a higher temperature than water, resulting in a greater temperature difference.
- For places with relatively well-defined seasons like India and Northern Europe, this will mean a large difference in water and land temperatures especially during the late spring/early summer and late autumn/early winter. **Hence, statement 2 is correct**.
- **Therefore, both Statement I and Statement II are correct and Statement II is the correct explanation of Statement I.**

Source:

<https://ncert.nic.in/ncerts/l/keph203.pdf>

<https://ventomaritime.dk/blog/difference-weather-between-land-and-sea#:~:text=Water%20has%20about%20four%20times,respond%20slower%20to%20temperature%20changes.>

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75. Consider the following statements:

- In a seismograph, P waves are recorded earlier than S waves.
- In P waves, the individual particles vibrate to and fro in the direction of wave propagation whereas in S waves, the particles vibrate up and down at right angles to the direction of wave propagation.

Which of the statements given above is/are correct?

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

Explanation: (c)

- When an earthquake occurs, two main types of vibratory waves move through the body of the earth from the point of fracture. The primary, or **P, waves travel most quickly and are the first to be registered by the seismograph.** Secondary, or S, waves travel more slowly. **Hence, statement 1 is correct.**
 - As S waves have a greater amplitude than P waves the two groups are easily distinguishable on the seismogram.
- Seismic P waves are also called compressional or longitudinal waves, they compress and expand (oscillate) the ground back and forth (to and fro) in the direction of travel, like sound waves.**
 - Particle motion is parallel to the direction of propagation (longitudinal).** Material returns to its original shape after the wave passes.
- The **S waves** in an earthquake are **examples of Transverse waves.**
 - In a transverse wave the **particle displacement is perpendicular to the direction of wave propagation.** The particles do not move along with the wave; they simply **oscillate up and down about their individual equilibrium positions** as the wave passes by. Pick a single particle and watch its motion. **Hence, statement 2 is correct.**

Source:

Statement 1 - <https://earthquakescanada.nrcan.gc.ca/info-gen/smeters-smetres/seismogram-en.php>
 Statement 2 - https://www.iris.edu/hq/inclass/animation/pwave_motion#:~:text=P%20wave%20is%20the%20fastest,original%20shape%20after%20wave%20passes.https://www.drishtiiias.com/to-the-points/paper1/earthquake-4https://www.drishtiiias.com/daily-updates/daily-news-analysis/earthquake-14

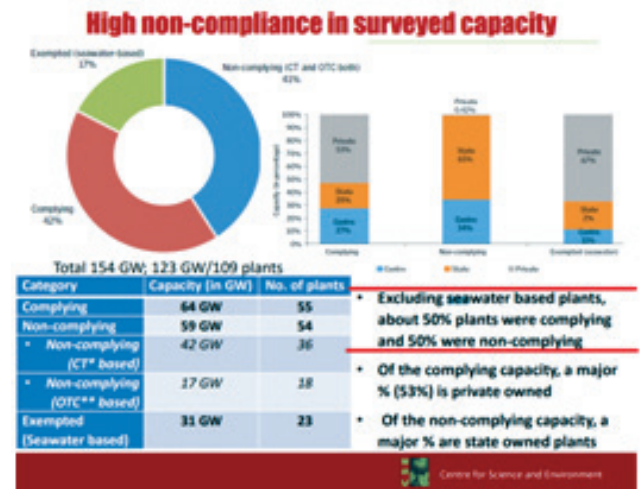
76. With reference to coal-based thermal power plants in India, consider the following statements:

- None of them uses seawater.
- None of them is set up in water-stressed district.
- None of them is privately owned.

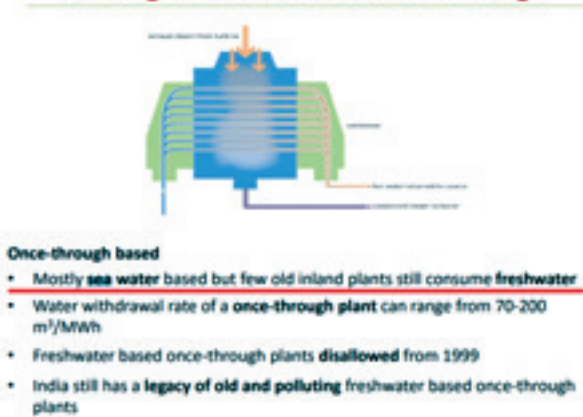
How many of the above statements are correct?

- Only one
- Only two
- All three
- None

Explanation: (d)



Cooling tower based versus Once-through



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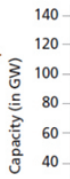
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- According to above given figures it is clear that coal based thermal power plants in India use seawater. Hence statement 1 is not correct.

Water stress; consume massive amounts; – 48% of existing coal power fleet located in water scarce districts; Nagpur, Chandrapur, Raichur, Korba, Barmer, Baran, Khammam, Kothagudem, Cuddalore, Birbhum, West medinipur



- Hence, statement 2 is correct.
- Adani Power Limited is the largest private thermal power producer in India with an installed capacity of 13,650 MW. hence, statement 3 is not correct.

Source:

Statements 1 and 2 - https://cdn.cseindia.org/attachments/0.71571700_1629984459_cse-coal-power-water.pdf
 Statement 3 - <https://www.adanipower.com/operational-power-plants>
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/singareni-thermal-power-plant>
<https://www.drishtiiias.com/daily-news-analysis/unviability-of-new-coal-based-power-plants>

77. ‘Wolbachia method’ is sometimes talked about with reference to which one of the following?
- Controlling the viral diseases spread by mosquitoes
 - Converting crop residues into packing material
 - Producing biodegradable plastics
 - Producing biochar from thermo-chemical conversion of biomass

Explanation: (a)

- **Wolbachia are natural bacteria present in up to 60% of insect species**, including some mosquitoes. Wolbachia bacteria cannot make people or animals (for example, fish, birds, pets) sick.
 - For many years, **scientists have been studying Wolbachia, looking for ways to use it to potentially control the mosquitoes** that transmit human viruses.
- **The World Mosquito Program’s Wolbachia Method:**
 - The WMP’s field teams release male and female *Aedes aegypti* mosquitoes with Wolbachia over a number of weeks. These mosquitoes then breed with the wild mosquito population. Over time, the percentage of mosquitoes carrying Wolbachia grows until it remains high without the

need for further releases. **Mosquitoes with Wolbachia have a reduced ability to transmit viruses to people, decreasing the risk of Zika, dengue, chikungunya and yellow fever outbreaks.**

- Hence, option (a) is correct.

Source:

<http://www.eliminatedengue.com/our-research/Wolbachia#:~:text=This%20technique%20requires%20the%20release,population%20of%20mosquitoes%20gradually%20returns.>
<https://www.drishtiiias.com/daily-news-analysis/controlling-dengue-using-bacteria#:~:text=The%20bacteria%20Wolbachia%20%E2%80%9Cinhibits%E2%80%9D%20viral,its%20number%20within%20the%20mosquito.>
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/dengue-6>

78. Consider the following activities :
- Spreading finely ground basalt rock on farmlands extensively
 - Increasing the alkalinity of oceans by adding lime
 - Capturing carbon dioxide released by various industries and pumping it into abandoned subterranean mines in the form of carbonated waters

How many of the above activities are often considered and discussed for carbon capture and sequestration?

- Only one
- Only two
- All three
- None

Explanation: (c)

- Carbon sequestration is both a natural and artificial process by which carbon dioxide is removed from the Earth’s atmosphere and then stored in liquid or solid form.
- **Ground basalt has been used as mineral fertiliser since the early thirties.** Ground basalt captures CO₂ from the atmosphere and the soil pore space, raises the soil pH and reduces ocean acidification. One tonne of basalt captures 0.153–0.165 tonne CO₂, depending on infiltration rate.
 - **Ground basalt added to agricultural fertiliser captures atmospheric carbon dioxide (CO₂),** raises the soil pH, reduces ocean acidification and supplies important nutrients such as magnesium, potassium, calcium, iron and phosphorus. **Hence, 1 is correct.**
- Oceans absorb about 25% of the carbon dioxide emitted through human activities each year.

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- As such, the polar regions absorb more carbon dioxide and by 2100, most of the global oceans are expected to be made up of carbon dioxide, **potentially altering the chemistry of the ocean, making it more acidic.**
 - **Since carbon makes ocean acidic, increasing alkalinity of oceans would help in carbon sequestration. Hence, 2 is correct.**
- In carbon capture and storage (CCS) processes, **carbon dioxide is first separated from other gases contained in industrial emissions.**
- It is then compressed and transported to a **location that is isolated from the atmosphere** for long-term storage.
 - Suitable storage locations might include **geologic formations such as deep saline formations (sedimentary rocks whose pore spaces are saturated with water containing high concentrations of dissolved salts), depleted oil and gas reservoirs, or the deep ocean. Hence, 3 is correct.**

Source:

Statement 1 - [https://link.springer.com/article/10.1007/s12665-022-10320-0#:~:text=Ground%20basalt%20captures%20CO2,\(41.1%E2%80%933000%20Pa\).](https://link.springer.com/article/10.1007/s12665-022-10320-0#:~:text=Ground%20basalt%20captures%20CO2,(41.1%E2%80%933000%20Pa).)

Statement 2 - <https://www.conserve-energy-future.com/carbon-sequestration.php>

Statement 3 - <https://www.britannica.com/technology/carbon-sequestration>

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/carbon-sequestration>

<https://www.drishtiiias.com/daily-updates/daily-news-analysis/carbon-capture-and-utilisation-technologies>

79. 'Aerial metagenomics' best refers to which one of the following situations?
- Collecting DNA samples from air in a habitat at one go
 - Understanding the genetic makeup of avian species of a habitat
 - Using air-borne devices to collect blood samples from moving animals
 - Sending drones to inaccessible areas to collect plant and animal samples from land surfaces and water bodies

Explanation: (a)

- Metagenomics is the study of the structure and function of entire nucleotide sequences isolated and analysed from all the organisms (typically microbes) in a bulk sample.

- Metagenomics is often used to study a specific community of microorganisms, such as those residing on human skin, in the soil or in a water sample.
- **Aerial metagenomics is a scientific field that involves studying the genetic material present in the air, specifically the DNA and RNA of microorganisms suspended in the atmosphere.**
- It focuses on the **analysis of the microbial communities or microbiomes found in the air samples** collected from various environments such as outdoor air, indoor air, and airborne particles.
- **Hence, option A is correct.**

Source:

<https://www.genome.gov/genetics-glossary/Metagenomics>

80. 'Microsatellite DNA' is used in the case of which one of the following?
- Studying the evolutionary relationships among various species of fauna
 - Stimulating 'stem cells' to transform into diverse functional tissues
 - Promoting clonal propagation of horticultural plants
 - Assessing the efficacy of drugs by conducting series of drug trials in a population

Explanation: (a)

Microsatellite DNA, also known as short tandem repeats (STRs), is one of the best suitable genetic markers for analyzing pedigree, population structure, **genome variation**, evolutionary process, and fingerprinting purposes. **Hence, option a is correct.**

Source:

<https://www.genome.gov/genetics-glossary/Microsatellite>
<https://indianexpress.com/article/parenting/blog/curious-kids-how-does-dna-affect-our-fingerprints-and-eye-colour-8455506/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5622345/#:~:text=Microsatellite%20repeat%20DNA%20is%20best,exploited%20as%20a%20genetic%20marker.>
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/human-pangenome-map>

81. Consider the following statements in relation to Janani Suraksha Yojana:
- It is a safe motherhood intervention of the State Health Departments.
 - Its objective is to reduce maternal and neonatal mortality among poor pregnant women.

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3. It aims to promote institutional delivery among poor pregnant women.
4. Its objective includes providing public health facilities to sick infants up to one year of age.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Explanation: (b)

Janani Suraksha Yojana:

- The Yojana, launched on 12th April 2005, is being implemented in all states and UTs with special focus on low performing states.
- It is a safe motherhood intervention **under the National Rural Health Mission (NRHM). Hence, statement 1 is not correct.**
- It was implemented with the **objective of reducing maternal and neo-natal mortality** by promoting institutional delivery among the poor pregnant women. **Hence, statements 2 and 3 are correct.**
- Providing public health facilities to sick infants up to one year of age is not an **objective** of the scheme. **Hence, statement 4 is not correct.**

Source:

<https://jalaun.nic.in/scheme/janani-suraksha-yojana-jsy/>
<https://www.drishtiiias.com/daily-news-analysis/national-health-mission-and-janani-suraksha-yojana>
<https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=842&lid=308>

82. Consider the following statements in the context interventions being undertaken under Anaemin Mukh Bharat Strategy :

1. It provides prophylactic calcium supplementation for pre-school children, adolescents and pregnant women.
2. It runs a campaign for delayed cord clamping at the time of child-birth.
3. It provides for periodic deworming to children and adolescents.
4. It addresses non-nutritional causes of anaemia in endemic pockets with special focus on malaria, hemoglobinopathies and fluorosis.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Explanation: (c)

Interventions of Anaemia Mukh Bharat:

- Not Prophylactic calcium supplementation but **Prophylactic Iron and Folic Acid Supplementation** is provided to children, adolescents and women of reproductive age and pregnant women irrespective of anemia. **Hence, statement 1 is not correct.**
- Appropriate Infant and Young Child Feeding (IYCF) with emphasis on adequate and age-appropriate complementary foods for children 6 months and above.
- Increase intake of iron-rich, protein-rich and vitamin C-rich foods through dietary diversification/quantity/frequency and food fortification
- **Promoting practice of delayed cord clamping** (by atleast 3 minutes or until cord pulsations cease) in all health facility deliveries followed by early initiation of breastfeeding within 1 hour of birth. **Hence, statement 2 is correct.**
- **Bi-annual mass deworming for children in the age groups between 1-19 years** is carried out every year under National Deworming Day (NDD) programme. **Hence, statement 3 is correct.**
 - The Anemia Mukh Bharat, also integrates deworming of women of reproductive age and for pregnant women as part of the NDD strategy.
- **Addressing non-nutritional causes of anemia in endemic pockets**, with special focus on malaria, haemoglobinopathies and fluorosis.
- **Hence, statement 4 is correct.**

Source:

<https://anemiamukhbharat.info/interventions/#3rd>
<https://www.drishtiiias.com/daily-news-analysis/anaemia-mukh-bharat>

83. Consider the following statements :

1. Carbon fibres are used in the manufacture of components used in automobiles and aircrafts.
2. Carbon fibres once used cannot be recycled.

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Which of the statements give above is/are correct?

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

Explanation: (a)

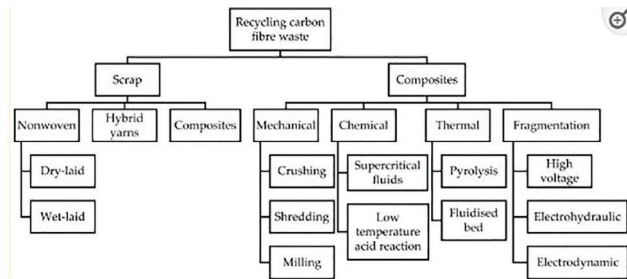
Carbon Fibre:

Carbon fiber is composed of carbon atoms bonded together to form a long chain. The fibers are extremely stiff, strong, and light, and are used in many processes to create excellent building materials.

Characteristics and Applications of Carbon Fibers	
1. Physical strength, specific toughness, light weight	Aerospace, road and marine transport, sporting goods
2. High dimensional stability, low coefficient of thermal expansion, and low abrasion	Missiles, aircraft brakes, aerospace antenna and support structure, large telescopes, optical benches, waveguides for stable high-frequency (GHz) precision measurement frames
3. Good vibration damping, strength, and toughness	Audio equipment, loudspeakers for Hi-fi equipment, pickup arms, robot arms
4. Electrical conductivity	Automobile hoods, novel tooling, casings and bases for electronic equipments, EMI and RF shielding, brushes
5. Biological inertness and x-ray permeability	Medical applications in prostheses, surgery and x-ray equipment, implants, tendon/ligament repair
6. Fatigue resistance, self-lubrication, high damping	Textile machinery, general engineering
7. Chemical inertness, high corrosion resistance	Chemical industry: nuclear field; valves, seals, and pump components in process plants
8. Electromagnetic properties	Large generator retaining rings, radiological equipment

- Hence, statement 1 is correct.
- Carbon fibre is environmentally friendly and exhibits a longer life cycle. However, carbon fibre consumes almost 14 times more energy in its creation compared with steel. This significant energy-intensiveness has led to huge emissions of greenhouse gases.

- Therefore, the recycling process could be one of the best ways to reduce this environmental impact while meeting global demand for this material in industrial applications.
- Currently, carbon fibre waste or other fibre composites can be recycled using four types of technologies. Hence, statement 2 is not correct.



Source:

<https://www.materialsciencejournal.org/vol14no1/carbon-fibres-production-properties-and-potential-use/>
<https://www.sciencedirect.com/topics/materials-science/carbon-fiber#:~:text=Carbon%20fibers%20can%20be%20defined,between%205%20and%2010%20CE%BCm.>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9324376/>
https://www.energy.gov/sites/default/files/2016/09/f33/fcto_h2_storage_700bar_workshop_3_warren.pdf

84. Consider the following actions :

1. Detection of car crash/collision which results in the deployment of airbags almost instantaneously.
2. Detection of accidental free fall of a laptop towards the ground which results in the immediate turning off of the hard drive
3. Detection of the tilt of smartphone which results in the rotation of display between portrait and landscape mode

In how many of the above action is the function of accelerometer required?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation: (c)

Functions of Accelerometer:

- The accelerometer detects signals that are used to identify major vehicle crash/collisions. Hence, statement 1 is correct.
- The application of accelerometers extends to multiple disciplines, both academic and consumer-driven.

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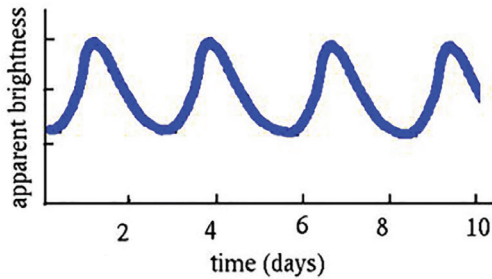


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Explanation: (a)

- Cepheids, also called Cepheid Variables, are stars which brighten and dim periodically. This behavior allows them to be used as cosmic yardsticks out to distances of a few tens of millions of light-years. **Hence, pair 1 is not correctly matched.**
- Cepheids, also called Cepheid Variables, are stars which brighten and dim periodically. This behavior allows them to be used as cosmic yardsticks out to distances of a few tens of millions of light-years.



- A nebula is a giant cloud of dust and gas in space. Some nebulae (more than one nebula) come from the gas and dust thrown out by the explosion of a dying star, such as a supernova. **Hence, pair 2 is not correctly matched.**
- According to NASA, a pulsar is a rapidly rotating neutron star with a strong magnetic field. Pulsars are the result of a massive star running out of fuel, collapsing under its own weight, and exploding as a supernova. **Hence, pair 3 is correctly matched.**

Source:

<https://spaceplace.nasa.gov/nebula/en/#:~:text=video%2Fmp4>.
<https://starchild.gsfc.nasa.gov/docs/StarChild/questions/cepheids.html>
https://imagine.gsfc.nasa.gov/science/objects/neutron_stars1.html#:~:text=Pulsars%20are%20rotating%20neutron%20stars,very%20powerful%20beams%20of%20light.
<https://www.drishtilias.com/daily-updates/daily-news-analysis/pillars-of-creation-james-webb-telescope>

87. Which one of the following countries has its own Satellite Navigation System?
- (a) Australia (b) Canada
 (c) Israel (d) Japan

Explanation: (d)

Navigation Systems Operational in the World:

- GPS from the U.S.
- GLONASS from Russia.
- Galileo from European Union
- BeiDou from China.
- NavIC from India
- **QZSS from Japan.**
- **Hence, option D is correct.**

Source:

<https://www.thehindubusinessline.com/opinion/navic-indias-own-gps-to-make-greater-inroads/article65973039.ece>
<https://www.drishtilias.com/daily-updates/daily-news-analysis/navic-4#:~:text=About%3A,however%20only%20seven%20remain%20active>.

88. Consider the following statements:

1. Ballistic missiles are jet-propelled at subsonic speeds throughout their flights, while cruise missiles are rocket-powered only in the initial phase of flight.
2. Agni-V is a medium-range supersonic cruise missile, while BrahMos is a solid-fuelled intercontinental ballistic missile.

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

Explanation: (d)

- **Cruise missiles are jet-propelled** at subsonic speeds throughout their flights, while **ballistic missiles are rocket-powered** only in the initial (boost) phase of flight, after which they follow an arcing trajectory to the target. **Hence, statement 1 is not correct.**
- Agni V is India's long-range surface-to-surface **ballistic missile**, which can hit a target with a precision that is 5,000 km away. The BrahMos is a **supersonic cruise missile**, developed by the joint Russian-Indian BrahMos Aerospace company. **Hence, statement 2 is not correct.**

Source:

<https://www.britannica.com/technology/strategic-missile>
<https://indianexpress.com/article/explained/agni-ballistic-missile-vs-china-hypersonic-missile-7595125/>

89. Consider the following statements regarding mercury pollution:

1. Gold mining activity is a source of mercury pollution in the world.

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Explanation: (b)

The new definition and criterion of MSMEs will come into effect from 1st July, 2020.

- The definition of **Micro** manufacturing and services units was increased to **Rs. 1 Crore of investment and Rs. 5 Crore of turnover**.
- The limit of **small unit** was **increased to Rs. 10 Crore of investment and Rs 50 Crore of turnover**.
- For **medium Enterprises**, now it will be **Rs. 50 Crore of investment and Rs. 250 Crore of turnover**. Hence, **Statement 1 is not correct**.

Further Revised MSME Classification (Announced by Union Minister Prakash Javdekar)			
Composite Criteria : Investment and Annual Turnover			
Classification	Micro	Small	Medium
Manufacturing & Services	Investment < Rs. 1 Cr.	Investment < Rs. 10 Cr.	Investment < Rs. 50 Cr.
	and Turnover < Rs. 5 Cr.	and Turnover < Rs. 50 Cr.	and Turnover < Rs. 250 Cr.

- **Priority Sector Lending Guidelines:** In terms of Master Direction on ‘Priority Sector Lending (PSL) – Targets and Classification’ dated September 4, 2020, **all bank loans to MSMEs conforming to the conditions prescribed therein qualify for classification under priority sector lending.**
 - **Bank loans to Micro, Small and Medium Enterprises** (for both manufacturing and service sectors) engaged in providing or rendering of services and defined in terms of investment in equipment under MSMED Act, 2006, **irrespective of loan limits, are eligible for classification under priority sector, w.e.f. March 1, 2018. Hence, Statement 2 is correct.**

Source:

<https://msme.gov.in/faqs/q1-what-definition-msme#:~:text=The%20Government%20of%20India%20on,on%20the%20MSMED%20Act%2C%202006.>
<https://vikaspedia.in/agriculture/agri-credit/credit-institutions/priority-sector-lending>
<https://www.drishitias.com/to-the-points/paper3/micro-small-and-medium-enterprises-msme>

92. With reference to Central Bank digital currencies, consider the following statements :
1. It is possible to make payments in a digital currency without using US dollar or SWIFT system.
 2. A digital currency can be distributed with condition programmed into it such as a time-frame for spending it.

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

Explanation: (c)

- Central Bank Digital Currency (CBDC) is a digital form of currency notes issued by a central bank. Here payments in a digital currency are without using the US dollar or SWIFT system. **Hence, statement 1 is correct.**
- CBDC can be classified into two broad types viz. general purpose or retail (CBDC-R) and wholesale (CBDC-W).
 - Retail CBDC would be potentially available for use by all viz. private sector, non-financial consumers and businesses **while wholesale CBDC is designed for restricted access** to select financial institutions.
 - While Wholesale CBDC is intended for the settlement of interbank transfers and related wholesale transactions, Retail CBDC is an electronic version of cash primarily meant for retail transactions.
- **Programmability:** One interesting application of CBDC is the **technical possibility of programmability**. CBDCs have the possibility of programming the money by tying the end use. For example, agriculture credit by banks can be programmed to ensure that it is used only at input store outlets.
 - **However, the programmability feature of CBDC needs to be carefully examined in order to retain the essential features of a currency.** It can also have other implications for monetary policy transmission **as tokens may have an expiry date, by which they would need to be spent**, thus ensuring consumption. **Hence, statement 2 is correct.**
 - The programmability of tokens can be achieved using the following:
 - ◆ **Smart contracts:** Business rules are stored as code that is executed during transactions to verify that the token is being used correctly.
 - ◆ **Token version:** The version of the token can be tightly linked to the technical code class. The alternative is that the version is stored as a token data field.

Source:

<https://rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1218>

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93. In the context of finance, the term 'beta' refers to
- the process of simultaneous buying and selling of an asset from different platforms
 - an investment strategy of a portfolio manager to balance risk versus reward
 - a type of systemic risk that arises where perfect hedging is not possible
 - a numeric value that measures the fluctuations of a stock to changes in the overall stock market.

Explanation: (d)

- In the context of finance, the term 'beta' refers to a **measure of how an individual asset moves (on average) when the overall stock market increases or decreases**. It is used as a measure of risk and is an integral part of the Capital Asset Pricing Model (CAPM). **A company with a higher beta has greater risk and also greater expected returns**. The beta coefficient can be interpreted as follows:
 - $\beta = 1$ exactly as volatile as the market
 - $\beta > 1$ more volatile than the market
 - $\beta < 1 > 0$ less volatile than the market
 - $\beta = 0$ uncorrelated to the market
 - $\beta < 0$ negatively correlated to the market
- The beta coefficient can be calculated by dividing the product of the covariance of the security's returns and the market's returns by the variance of the market's returns over a specified period
- A type of systemic risk that arises where perfect hedging is not possible is called basis risk.
- An investment strategy of a portfolio manager to balance risk versus reward is called asset allocation.
- The process of simultaneous buying and selling of an asset from different platforms, exchanges or locations to cash in on the price difference is called arbitrage.
- A numeric value that measures the fluctuations of a stock to changes in the overall stock market is called beta. Hence, option (d) is correct.**

Source:

<https://www.investopedia.com/terms/b/beta.asp>

94. Consider the following statements:
- The Self-Help Group (SHG) programme was originally initiated by the State Bank of India by providing microcredit to the financially deprived.

- In an SHG, all members of a group take responsibility for a loan that an individual member takes.
 - The Regional Rural Banks and Scheduled Commercial Banks support SHGs.
- How many of the above statements are correct?
- Only one
 - Only two
 - All three
 - None

Explanation: (b)

- Self-Help Group or in-short SHG is now a well-known concept. It is now almost two decade old. It is reported that the SHGs have a role in hastening country's economic development. SHGs have now evolved as a movement. **We can trace the origin of the concept of SHGs in Bangladesh (Dr. Mehmud Yunus). India has adopted the Bangladesh's model in a modified form.**
 - In 1970, Ilaben Bhat, founder member of 'SEWA' (Self Employed Women's Association) in Ahmadabad, had developed a concept of 'women and micro-finance'**. The Annapurna Mahila Mandal' in Maharashtra and 'Working Women's Forum' in Tamilnadu and many National Bank for Agriculture and Rural Development (NABARD)-sponsored groups have followed the path laid down by 'SEWA'.
 - In 1991-92 NABARD started promoting self-help groups on a large scale. And it was the real take-off point for the 'SHG movement'**. In 1993, the Reserve Bank of India also allowed SHGs to open saving accounts in banks. **Hence, statement 1 is not correct.**
- Such **groups work as a collective guarantee system for members who propose to borrow from organised sources**. The poor collect their savings and save it in banks. In return they receive easy access to loans with a small rate of interest to start their micro unit enterprise. **Hence, statement 2 is correct.**

Table 2 : Pattern of Partnership

Number of Participating Banks
Number of Branches of Banks Lending to SHGs
Commercial Banks
Regional Rural Banks (RRBs)
Co-operatives
Number of Participating NGO and other Agencies

- Hence, statement 3 is correct.**

Source:

<https://ncwapps.nic.in/pdfReports/SHG-Maharashtra.pdf>
<https://www.drishtiiias.com/to-the-points/Paper2/self-help-groups-shgs>
<https://ncwapps.nic.in/pdfReports/SHG-Maharashtra.pdf>

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95. Consider the following statements :

Statement-I : India's public sector health care system largely focuses on curative care with limited preventive, promotive and rehabilitative care.

Statement-II : Under India's decentralized approach to health care delivery, the States are primarily responsible for organizing health services.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (b)

- The Ayushman Bharat - Health and Wellness Centres (AB-HWCs) were launched under the Ayushman Bharat Programme in a bid to move away from selective health care to a more comprehensive range of services spanning preventive, promotive, curative, rehabilitative and palliative care for all ages. **Hence, statement-I is correct.**
- Under India's decentralized approach to health care delivery, the states are primarily responsible for organizing health services, since public health is a subject under the State list of 7th Schedule. **Hence, statement-II is correct.**
- However, Statement-II is not the correct explanation for Statement-I.

Source:

<https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/apr/doc2023424185801.pdf>

96. Consider the following statements :

Statement-I : According to the United Nations 'World Water Development Report, 2022'. India extracts more than a quarter of the world's groundwater withdrawal each year.

Statement-II : India needs to extract more than a quarter of the world's groundwater each year to satisfy the drinking water and sanitation needs of almost 18% of world's population living in its territory.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Explanation: (c)

- **India is the largest user of groundwater in the world. It uses an estimated 230 cubic kilometers of groundwater per year - over a quarter of the global total.** World Bank
- More than 60% of irrigated agriculture and 85% of drinking water supplies are dependent on groundwater. Urban residents increasingly rely on groundwater due to unreliable and inadequate municipal water supplies (**Because 89% of Groundwater is used for irrigation purposes**). **Hence, statement 2 is not correct.**
- From the 'above' with 'below' figure India extract approx half of global groundwater. **Hence, statement 1 is correct.**

Table 5.1 Fifteen countries with the largest estimated annual groundwater extractions (2010)

Country	Population 2010 (in thousands)	Estimated groundwater extraction 2010 (km ³ /year)	Groundwater extraction		
			Groundwater extraction for irrigation (%)	Groundwater extraction for domestic use (%)	Groundwater extraction for industry (%)
India	1 224 614	251.0	89	9	2
China	1 341 335	112.0	54	20	26
USA	310 384	111.7	71	23	6
Pakistan	173 593	64.8	94	6	0
Iran	73 974	63.4	87	11	2
Bangladesh	148 592	30.2	86	13	1
Mexico	113 423	29.5	72	22	6
Saudi Arabia	27 448	24.2	92	5	3
Indonesia	239 871	14.9	2	93	5
Turkey	72 752	13.2	60	32	8
Russia	142 985	11.6	3	79	18
Syria	20 411	11.3	90	5	5
Japan	126 536	10.9	23	29	48
Thailand	69 122	10.7	14	60	26
Italy	60 551	10.4	67	23	10

Source:

World Bank

<https://unesdoc.unesco.org/ark:/48223/pf0000380721/PDF/380721eng.pdf.multi Page 75>

97. Consider the following statements :

1. According to the Constitution of India, the Central Government has a duty to protect States from internal disturbances.

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