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T.B.C.: FIAS-SFG24-L1T43 **Test Booklet Series**

Serial No.

TEST BOOKLET
GENERAL STUDIES

A

Time Allowed: ONE HOUR **Maximum Marks: 100**

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES *NOT* HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOK.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Name, Email Id and Mobile No. on the test booklet in the Box provided alongside. *DO NOT* write anything else on the Test Booklet.

Name:
Email Id:
Mobile No:

4. This Test Booklet contains **50** items (questions). Each item is printed in **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose *ONLY ONE* response for each item.
5. You have to mark all your responses ONLY on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. ***All*** items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator *only* the *Answer Sheet*. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers:**

    THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.

    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.

    (ii) If a candidate gives more than one answer, it will be treated as **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.

    (iii) If a question is left bank i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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Q.1) 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

Q.2) The United Nations Conference on Environment and Development (UNCED), also known as the 'Rio Earth Summit' of 1992 laid down a new blueprint for international action on environmental issues. In this context, consider the following initiatives:
1. The Convention on Biological Diversity (CBD)
2. The Declaration on the Principles of Forest Management
3. The creation of the Commission on Sustainable Development
4. Agenda 21 outlining the strategies for Sustainable Development
5. Aichi Targets to reduce biodiversity loss

How many of the above were the outcomes of the 'Rio Earth Summit' of 1992?
a) Only two
b) Only three
c) Only four
d) All five

Q.3) Radiative forcing is an overall measure of how a greenhouse gas, aerosols and changes in solar radiation affects Earth's temperature by considering its 'ability to trap heat' and its 'concentration' in the atmosphere, and 'how long it stays there'. In this context, which of the following greenhouse gases have contributed to the highest radiative forcing?
a) Carbon Dioxide (CO_2)
b) Methane (CH_4)
c) Nitrous Oxide (N_2O)
d) Chlorofluorocarbons

Q.4) Consider the following statements regarding the 'National Adaptation Fund for Climate Change (NAFCC)':
1. It is a central sector scheme launched by the Ministry of Environment, Forest and Climate Change (MoEFCC).
2. It provides direct financial support to the eligible start-ups engaged in building adaptation technologies.
3. The National Bank for Agriculture and Rural Development (NABARD) acts as the National Implementing Entity of the NAFCC.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Q.5) Which of the following best describes the aim of the Shoonya campaign initiated by NITI Aayog?
a) Reducing air pollution by promoting the use of Electric Vehicles (EVs).
b) Promoting circular economy in the management of the Municipal Solid Wastes.
c) Promoting biofuels and phased reduction of fossil fuels in public transport.
d) Incentivizing the construction of public utilities to eliminate open defecation.

Q.6) Consider the following statements:
1. There may be a decrease in the ability of certain fishes to detect predators.
2. It will result in the increased emission of Sulphur from the Ocean.
3. There may be an increase in the concentration of coccolithophores.

How many of the above correctly represent the impact of ocean acidification?
a) Only one
b) Only two
c) All three
d) None

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Q.7) Global Warming Potential (GWP) of a gas is a measure used to estimate, compare and aggregate the relative climate effects of various greenhouse gases. In this context, consider the following gases:

1. Nitrous Oxide (N_2O)
2. Methane (CH_4)
3. Sulfur Hexafluoride (SF_6)
4. Hydrofluorocarbons (HFC-23)

Which of the following options correctly arranges gases in ascending order based on their GWP for a time horizon of 100 years?

a) 1-2-3-4

b) 1-2-4-3

c) 2-1-4-3

d) 2-1-3-4

Q.8) Consider the following statements regarding India's Long-Term Low Emission Development Strategies (LT-LEDS):

1. It is formulated based on the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC).
2. It emphasizes India's commitment to phase out the use of coal for energy generation by 2040.
3. It promotes strengthening of social use of forest through decentralized local governance.

How many of the above statements are correct?

a) Only one

b) Only two

c) All three

d) None

Q.9) Consider the following statements about Carbon Stock:

1. It is the amount of carbon sequestrated from the atmosphere and stored in the biomass deadwood, soil, and litter in the forest.
2. The carbon stock in India's forests has been consistently increasing since the last 10 years.
3. Among Indian states, Arunachal Pradesh has the maximum amount of carbon stock in its forests.

How many of the above statements are correct?

a) Only one

b) Only two

c) All three

d) None

Q.10) Consider the following statements regarding the 'National Mission for a Green India':

1. It is a central sector scheme launched under the National Action Plan on Climate Change (NAPCC).
2. It has set a target of 33% of the country's geographical area to be covered by forest or tree cover.

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

Q.11) Which one of the following statements best describes the term 'Social Cost of Carbon'? It is a measure, in monetary value, of the:

a) long-term damage done by a tonne of CO_2 emissions in a given year.

b) requirement of fossil fuels for a country to provide goods and services to its citizens, based on the burning of those fuels.

c) efforts put in by a climate refugee to adapt to live in a new place.

d) contribution of an individual person to the carbon footprint on the planet Earth.

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Q.12) Consider the following pairs:

Convention	Objective
1. Bonn Convention	Global treaty to manage trade in hazardous chemicals.
2. Basel Convention	Control of transboundary movements of hazardous wastes.
3. Rotterdam Convention	Conservation of migratory species

How many of the pairs given above are correct?

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

Q.13) Which one of the following statements best describes the term 'carbon fertilization'?

a) Increased temperature of earth due to increased concentration of carbon dioxide in the atmosphere.
b) Increased acidity of oceans due to increased concentration of carbon dioxide in the atmosphere.
c) Increased sequestration of carbon dioxide due to its increased concentration in the atmosphere.
d) Increased photosynthesis and growth of plants due to the increase in concentration of carbon dioxide in the atmosphere.

Q.14) With reference to the Green Climate Fund (GCF), consider the following statements:

1. It was established during the COP 21 of United Nations Framework Convention on Climate Change (UNFCCC), held at Paris in 2015.
2. The Headquarters of GCF is situated in Geneva.
3. GCF is mandated to invest at least half of its adaptation resources in the most climate vulnerable countries.

How many of the above statements are correct?

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

Q.15) In the context of India's preparation for climate-smart agriculture, consider the following statements:

1. The 'Climate-Smart village' approach in India is a part of a project led by the climate change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under consultative group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

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

Q.16) With reference to Nation Green Hydrogen Mission, consider the following statements:

Statement I: National Green Hydrogen Mission seeks to promote demand entirely on the basis of domestic consumption of Green Hydrogen.

Statement II: Focus on domestic demand of Green Hydrogen will help India in reducing the import of fossil fuels at the same time it will also help India in reducing carbon emissions.

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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Q.17) Consider the following sources of renewable energy:

1. Wind
2. Solar
3. Biomass/Cogeneration
4. Small Hydro

Arrange these sources of renewable energy in descending order of their contribution in terms of installed capacity in India's total energy production.

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

Q.18) With reference to Montreal Protocol on Substances that Deplete the Ozone Layer, consider the following statements:

1. It lacks any funding mechanism for its members like Global Environment Facility provides for members of United Nation Framework Convention for Climate Change.
2. Kigali Amendment to the Montreal Protocol phased down Hydrofluorocarbons (HFCs) as these were potent ozone depleting substance.

How many of the statements given above are correct?

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

Q.19) Consider the following projects:

1. Nuclear power generation plant
2. Projects targeting reduction of air emissions
3. Direct waste incineration plants
4. Installation of wastewater disposal systems
5. Landfill projects

How many of the above projects/plants can be funded by Sovereign Green Bond Scheme of India?

a) Only two
b) Only three
c) Only four
d) All five

Q.20) Consider the following:

1. Seeding the sea with iron.
2. Marine cloud whitening.
3. Stratospheric injection of Sulphur dioxide.
4. Sequestering carbon in terrestrial ecosystem
5. Replacing fossil fuel with biofuel in vehicles
6. Miyawaki method of urban forestation

How many of the above are geo-engineering techniques which helps to mitigate the effects of climate change?

a) Only three
b) Only four
c) Only five
d) All six

Q.21) Consider the following statements:

1. "The Climate Group" is an international non-profit organization that drives climate action by building large networks and runs them.
2. The International Energy Agency in partnership with the Climate Group launched a global initiative "EP100".
3. EP100 brings together leading companies committed to driving innovation in energy efficiency and increasing competitiveness while delivering on emission reduction goals.
4. Some Indian companies are members of EP100.
5. The International Energy Agency is the Secretariat to the "Under2 Coalition".

Which of the statements given above are correct?

a) 1, 2, 4 and 5 only
b) 1, 3 and 4 only
c) 2, 3 and 5 only
d) 1, 2, 3, 4 and 5

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Q.22) With reference to 'Greenhouse Gases and Greenhouse effect', consider the following statements:

1. The greenhouse effect occurs mostly in the stratosphere layer of the earth's atmosphere.
2. The warming impact of greenhouse gases is one of the factors responsible for earth being called the Goldilocks planet.

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

Q.23) In context of Climate Change, the term 'Carbon neutrality' refers to:

a) a condition where carbon emissions are eliminated entirely to limit the global temperature.
b) replacing the sources of carbon emissions with renewable sources of energy production.
c) achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered.
d) offsetting carbon emission in one country by financially supporting carbon emission mitigating efforts in another country.

Q.24) With reference to Nationally Determined Contributions (NDC), consider the following statements:

1. Each Party to the Paris Agreement of UNFCCC is required to set targets under NDC and update it every five years.
2. NDC are binding in nature and represents mandatory pledges made by the countries.
3. As a part of NDC, India has currently committed to reduce Emissions Intensity of its GDP by 33-35% percent by 2030, from 2005 level.

How many of the above statements are correct?

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

Q.25) With reference to the Global Methane Pledge (GMP), consider the following statements:

1. It was launched at United Nations Climate Change Conference COP26, Glasgow by the European Union and the United States of America.
2. It aims to reduce global methane emissions by at least 30 percent from 2020 levels by 2030.
3. As a member of GMP, India has committed to reduce 50% methane emissions from the agricultural sector by 2030.

How many of the above statements are correct?

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

Q.26) With reference to 'Leadership Group for Industry Transition (LeadIT)', consider the following statements:

1. It was launched by the governments of Sweden and India at the UN Climate Action Summit in 2019.
2. It brings together countries, companies and industry experts to achieve net-zero emissions from heavy industries by 2050.

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

Q.27) In context of Climate Change, the term 'Green Carbon' refers to:

a) Carbon emissions released as a by-product of renewable energy production.
b) Carbon allotropes that do not cause global warming and helps in limiting the climate change.
c) Carbon released during the decomposition of organic matter in landfills.
d) Carbon sequestered from the atmosphere through photosynthesis and stored in terrestrial ecosystem.

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Q.28) With reference to the Green Credit Programme (GCP), consider the following statements:

1. It ranks Indian financial institutions based on their credit portfolios for promoting environmentally sustainable activities.
2. The Indian Council of Forestry Research and Education (ICFRE) is responsible for implementing this programme.

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

Q.29) With reference to the Climate Change Performance Index (CCPI) 2023, consider the following statements:

1. It is published annually by the United Nations Environment Programme (UNEP).
2. The highest weightage in the ranking is assigned to the Greenhouse Gas (GHG) emissions of nations.
3. India has secured a place amongst top 10 positions for past five years continuously.

How many of the statements given above are correct?

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

Q.30) In the context of international climate agreements, how does the 'Global Stocktake' contribute to Climate action?

a) Setting explicit targets for emissions reduction across different countries.
b) Allocating resources for renewable energy initiatives in developing countries.
c) Establishing an international market for carbon trading among countries.
d) Conducting periodic assessments of global progress toward climate goals.

Q.31) With reference to 'Global Climate Change Alliance', which of the following statements is/are correct?

1. It is an initiative of the European Union.
2. It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
3. It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

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

Q.32) With reference to Kyoto protocol, consider the following pairs:

Mechanisms	Description
1. Clean Development Mechanism	It allows nations to fulfill their emission reduction targets by investing in projects located in developed countries.
2. Joint implementation	It allows developed countries to invest in emission reduction projects in developing countries.
3. Emissions Trading	It allows countries to buy and sell emission permits from each other based on their individual national targets.

How many of the pairs given above are correctly matched?

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

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Q.33) With reference to Mission 'Lifestyle for Environment' (LiFE), consider the following statements:

1. It is global mass movement launched during the G20 Rome summit of 2021.
2. It places high emphasis on transitioning from a throwaway culture to a circular economy.
3. India is the first country to include LiFE in its Nationally Determined Contributions.

How many of the statements given above are correct?

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

Q.34) With reference to the National Mission for Sustainable Agriculture (NSMA), consider the following statements:

1. It aims to promote location specific Composite Farming Systems.
2. It aims to double the exports of organic agricultural products from India by 2030.

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

Q.35) The increasing amount of carbon dioxide in the air is slowly raising the temperature of the atmosphere, because it absorbs:

a) The water vapour of the air and retains its heat.
b) The ultraviolet part of the solar radiation.
c) All the solar radiations.
d) The infrared part of the solar radiation.

Q.36) Consider the following chemicals:

1. Chlorofluorocarbons (CFCs)
2. Halons
3. Hydrofluorocarbons (HFCs)
4. Carbon tetrachloride
5. Methyl chloroform
6. Dichlorodifluoromethane
7. Perfluorocarbons (PFCs)

How many of the above are Ozone depleting substances?

a) Only four
b) Only five
c) Only six
d) All seven

Q.37) With respect to "Rejuvenating Watersheds for Agricultural Resilience through Innovative Development" (REWARD) Project, consider the following statement:

1. It aims to strengthen national and state institutions' capacities for implementing data-driven approaches for climate resilient watershed management.
2. It aims to empower farming communities by supporting value chain in specific watersheds of participating states.
3. It is coordinated at the national level by the Department of Land Resources in Union Ministry of Rural Development.

How many of the statements given above are correct?

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

Q.38) With reference to the Zero Budget Natural Farming (ZBNF), consider the following statements:

1. It helps in improving aeration, humus content and water holding capacity of the soil.
2. Unlike Organic Farming, ZBNF is capital intensive due to its need for a modified agroecosystem.
3. Haryana is declared India's first 100% ZBNF state in the year 2024.

How many of the above statements are correct?

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

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Q.39) With reference to Energy Conservation Building Code (ECBC), consider the following statements:

1. It is a flagship programme of the Ministry of New and Renewable Energy.
2. For a commercial building to be ECBC compliant, it needs to demonstrate minimum energy savings of 50%.
3. In India, ECBC is designed for both commercial and residential buildings.

How many of the above statements are correct?

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

Q.40) With reference to Climate and Clean Air Coalition, consider the following statements:

1. The Coalition is a voluntary partnership aimed at reducing short-lived climate pollutants that drive both climate change and air pollution.
2. India is one of the founding members of Climate and Clean air coalition.
3. Its aims to reduce more than 90 percent of the global use of Hydrofluorocarbons (HFCs) by 2050, compared to 2010 levels.

How many of the above statements are correct?

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

Q.41) The Partnership for Action on Green Economy (PAGE), a UN mechanism to assist countries transition towards greener and more inclusive economies, emerged at:

a) The Earth Summit on Sustainable Development 2002, Johannesburg
b) The United Nations Conference on Sustainable Development 2012, Rio de Janeiro
c) The United Nations Framework Convention on Climate change 2015, Paris
d) The World Sustainable Development Summit 2016, New Delhi

Q.42) With reference to Black Carbon, consider the following statements:

1. It is a long-lived climatic pollutant.
2. It accelerates the melting of glaciers by reducing its surface albedo.
3. It is formed due to incomplete combustion of fossils fuels and wood.

How many of the above statements are correct?

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

Q.43) Consider the following statements:

Statement-I: The depletion of the ozone layer is more severe in Antarctica region than in the Arctic region.

Statement-II: The Antarctic region experiences lower average winter temperatures than the Arctic region, resulting in significant development of Polar Stratospheric Clouds (PSCs) in Antarctica.

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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Q.44) Consider the following conventions/ protocols:
1. Convention on Biological Diversity (CBD)
2. Minamata Convention on Mercury
3. Ramsar Convention on Wetlands.
4. United Nations Convention to Combat Desertification (UNCCD)
5. Montreal Protocol
6. United Nations Framework Convention on Climate Change (UNFCCC)

The Global Environment Facility (GEF) serves as a formal financial mechanism to how many of the above conventions/Protocols?
a) Only three
b) Only four
c) Only five
d) All six

Q.45) The scientific view is that the increase in global temperature should not exceed 2° C above preindustrial level. If the global temperature increases beyond 3° C above the pre-industrial level, what can be its possible impact/impacts on the world?
1. Terrestrial biosphere tends toward a net carbon source.
2. Widespread coral mortality will occur.
3. All the global wetlands will permanently disappear.
4. Cultivation of cereals will not be possible anywhere in the world.

Select the correct answer using the code given below:
a) 1 only
b) 1 and 2 only
c) 2, 3 and 4 only
d) 1, 2, 3 and 4

Q.46) Consider the following statements with reference to Perform Achieve and Trade (PAT) Scheme:
1. It aims to reduce Specific Energy Consumption (SEC) in energy intensive industries.
2. It allows for the issuance and trading of Energy saving certificates which can be sold only on electricity exchanges.
3. Central Electricity Regulatory Commission (CERC) is the designated market regulator for trading of Energy Saving Certificates (ESCerts), under the PAT scheme.

How many of the statements given above are correct?
a) Only one
b) Only two
c) All three
d) None

Q.47) In the context of Ocean Acidification, consider the following factors:
1. Increased eutrophication process in the Ocean.
2. Increased Sulphur dioxide (SO2) emissions from ships.
3. Increased rate of Volcanic activity.
4. Change in ocean circulation patterns.

How many of the factors given above tend to increase the 'Ocean Acidification'?
a) Only one
b) Only two
c) Only three
d) All four

Q.48) Consider the following statements:
1. All the member countries of the United Nations are eligible to join the International Solar Alliance.
2. The financial assistance extended by India to the International Solar Alliance is categorized within the capital expenditure of the Government of India's Annual Financial statement.
3. Global Solar Facility of International Solar Alliance aims to accelerate solar investments exclusively in the countries lying between the tropics.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

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Q.49) Which of the following is **not** one of the PANCHAMRITA promises, outlined by India at COP-26 of United Nations Framework Convention on Climate Change (UNFCCC)?

a) To take non-fossil energy capacity of India to 500 GW by 2030.
b) To meet 50% of India's energy requirement from renewable sources by 2030.
c) To reduce carbon intensity below 45 percent by 2030.
d) Achieving the target of net zero emissions by 2050.

Q.50) With reference to the Intergovernmental Panel on Climate Change (IPCC), consider the following statements:

1. It was established jointly by the World Meteorological Society and the United Nations Environment Programme (UNEP).
2. The IPCC's primary function is to conduct scientific assessments on climate change, its impacts, and potential response options.

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

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Q.1) 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

Ans) d
Exp) Option d is the correct answer.
Options 1, 2, 3 are correct: Hydrofluorocarbons (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.**
Option 4 is correct: The HFC-type hydraulic fluids are water-glycol hydraulic fluids. They contain around 40-45% water. Also, the synthetic lubricants make usage of HFCs.
Source: UPSC CSE Pre 2023
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.2) The United Nations Conference on Environment and Development (UNCED), also known as the 'Rio Earth Summit' of 1992 laid down a new blueprint for international action on environmental issues. In this context, consider the following initiatives:
1. The Convention on Biological Diversity (CBD)
2. The Declaration on the Principles of Forest Management
3. The creation of the Commission on Sustainable Development
4. Agenda 21 outlining the strategies for Sustainable Development
5. Aichi Targets to reduce biodiversity loss

How many of the above were the outcomes of the 'Rio Earth Summit' of 1992?
a) Only two
b) Only three
c) Only four
d) All five

Ans) c
Exp) Option c is the correct answer.
The **"Rio Earth Summit"** refers to the **United Nations Conference on Environment and Development (UNCED)** held in Rio de Janeiro, Brazil, in June **1992.** The conference marked a significant milestone in global efforts to address environmental and sustainable development issues.
Option 1 is correct: **The Convention on Biological Diversity (UNCBD)** was one of the major outcomes of the Rio Earth Summit. It aimed at promoting the conservation of biological diversity, sustainable use of its components, and the f**air and equitable sharing of benefits arising from genetic resources.**
Option 2 is correct: The summit endorsed **the Declaration on the Principles of Forest Management**, which outlined principles for the **sustainable management of forests**. It emphasized the conservation of biodiversity, sustainable use of forest resources, and the promotion of international cooperation in managing forests.

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Option 3 is correct: The creation of the **Commission on Sustainable Development (CSD)** was one of the outcomes of the Rio Earth Summit. The CSD was established to **monitor and implement the commitments** made at the summit and provided a platform for ongoing discussions on sustainable development.

Option 4 is correct: Agenda 21 was a comprehensive action plan that outlined strategies for achieving sustainable development. It was launched during the Rio Earth Summit of 1992. It covered various sectors, including poverty, consumption patterns, conservation of biodiversity, and management of natural resources.

Option 5 is incorrect: "Aichi Targets to reduce biodiversity loss" refers to a set of strategic goals and targets adopted under the Convention on Biological Diversity (CBD) during the Conference of the Parties (COP) held in Aichi, Japan, in 2010. This initiative was not launched during the Rio Earth Summit of 1992. The Aichi Targets are a set of 20 specific, measurable targets established to address the challenges of biodiversity loss and promote the conservation and sustainable use of biological diversity.

Knowledge Base:

The United Nations Framework Convention on Climate Change (UNFCCC) was another pivotal outcome of the Rio Earth Summit. It established a framework for addressing climate change through international cooperation. The objective was to stabilize greenhouse gas concentrations in the atmosphere.

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.3) Radiative forcing is an overall measure of how a greenhouse gas, aerosols and changes in solar radiation affects Earth's temperature by considering its 'ability to trap heat' and its 'concentration' in the atmosphere, and 'how long it stays there'. In this context, which of the following greenhouse gases have contributed to the highest radiative forcing?

a) Carbon Dioxide (CO_2)

b) Methane (CH_4)

c) Nitrous Oxide (N_2O)

d) Chlorofluorocarbons

Ans) a

Exp) Option a is the correct answer.

Greenhouse gases vary in their ability to absorb infrared radiation **(ability to trap heat),** and their effectiveness is influenced by both **atmospheric concentration** and the **duration they persist in the atmosphere**, known as their "lifetime." **The term "radiative forcing" integrates these factors into a single measure** of a impact of greenhouse gas's, aerosol, changes in solar radiation on Earth's temperature. A gas with strong infrared absorption capability and a longer atmospheric presence has a higher radiative forcing.

Carbon Dioxide has contributed to the highest radiative forcing in comparison to other greenhouse gases. While carbon dioxide may not be the most efficient greenhouse gas on a per-molecule basis, its **significance lies in its abundance and long atmospheric lifetime**. The radiative forcing of CO_2 is substantial due to its high concentration and persistence in the atmosphere. **Methane, Nitrous Oxides and Chlorofluorocarbons are more potent greenhouse gases per molecule compared to CO_2. However, their concentration in the atmosphere is much lower than that of CO_2.** Carbon dioxide's dominance in terms of concentration and its exceptionally long atmospheric lifetime make it the greenhouse gas with the highest overall radiative forcing.

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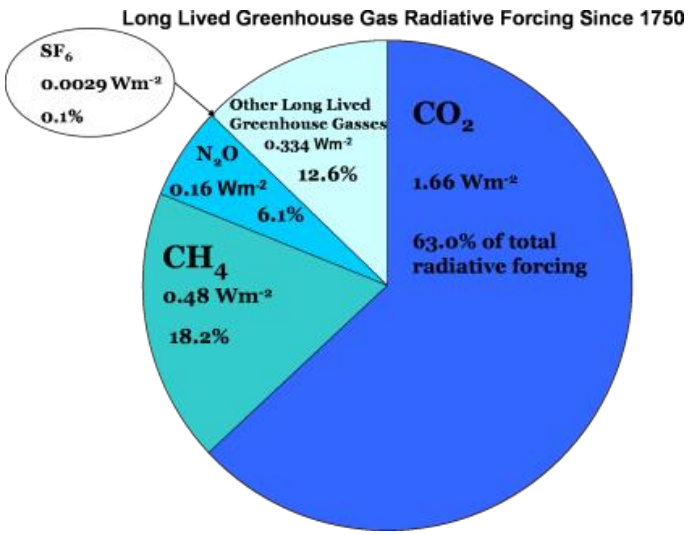

(Note: Radiative forcing is calculated in watts per square meter)
Source: https://gml.noaa.gov/outreach/behind_the_scenes/whymeasure.html
https://www.epa.gov/climate-indicators/climate-change-indicators-climate-forcing#:~:text=Of%20the%20greenhouse%20gases%20shown,in%20radiative%20forcing%20since%201990.
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.4) Consider the following statements regarding the 'National Adaptation Fund for Climate Change (NAFCC)':

1. It is a central sector scheme launched by the Ministry of Environment, Forest and Climate Change (MoEFCC).
2. It provides direct financial support to the eligible start-ups engaged in building adaptation technologies.
3. The National Bank for Agriculture and Rural Development (NABARD) acts as the National Implementing Entity of the NAFCC.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
Statement 1 is correct: The National Adaptation Fund for Climate Change (NAFCC) is a **central-sector scheme** that was launched in 2015. This fund was established by the **Ministry of Environment, Forests and Climate Change (MoEFCC),** Government of India. Hence, the given statement is correct.
Statement 2 is incorrect: NAFCC was established **to assist the States and Union Territories that are particularly vulnerable to the adverse effects of climate change** in meeting their cost of adaptation. There **is no provision pertaining to funding eligible start-ups under this scheme**. The activities under this scheme are implemented in the project mode. **The projects are aligned with the State and National Action Plans for Climate Change.** The state projects are required to be approved by their respective steering committees on the climate change.

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Statement 3 is correct: NABARD is the National Implementing Entity of this scheme. The States and UTs are required to prepare proposals in consultation with NABARD. NABARD performs roles in facilitating identification of project ideas/concepts from State Action Plan for Climate Change (SAPCC), project formulation, appraisal, sanction, disbursement of fund, monitoring & evaluation and capacity building of stakeholders including State Governments.
Source: https://www.nabard.org/content.aspx?id=585
https://www.nabard.org/auth/writereaddata/File/FinalImplementationNAdaptFund.pdf
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.5) Which of the following best describes the aim of the Shoonya campaign initiated by NITI Aayog?
a) Reducing air pollution by promoting the use of Electric Vehicles (EVs).
b) Promoting circular economy in the management of the Municipal Solid Wastes.
c) Promoting biofuels and phased reduction of fossil fuels in public transport.
d) Incentivizing the construction of public utilities to eliminate open defecation.

Ans) a
Exp) Option a is the correct answer.
The "Shoonya – Zero Pollution Mobility" initiative, led by NITI Aayog, aims to enhance air quality in India by **expediting the adoption of electric vehicles (EVs)** for ride-hailing and delivery services. Derived from the Sanskrit word for zero, "Shoonya" signifies the inception of possibilities. Inspired by this meaning, the **campaign intends to transform the transportation sector through a swift transition to zero-emission vehicles**. The campaign focuses on creating awareness among consumers and acknowledging industry efforts towards sustainable mobility. **The Shoonya campaign aims to pave the way for 100% electrification in India's urban final-mile connectivity and delivery sector**.
Source: https://www.mygov.in/campaigns/shoonya-zero-pollution-mobility/#:~:text=The%20%E2%80%9CShoonya%20%E2%80%93%20Zero%20Pollution%20Mobility,has%20over%20130%20corporate%20partners.
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.6) Consider the following statements:
1. There may be a decrease in the ability of certain fishes to detect predators.
2. It will result in the increased emission of Sulphur from the Ocean.
3. There may be an increase in the concentration of coccolithophores.

How many of the above correctly represent the impact of ocean acidification?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
Ocean acidification refers to a reduction in the pH of the ocean over an extended period of time. This is primarily caused by increased uptake of carbon dioxide from the atmosphere.
Statement 1 is correct: Alterations in ocean chemistry impact not only calcifying organisms but also non-calcifying ones. For instance, **increased acidity in seawater can diminish the ability of certain fish to detect predators.** This is because acidic waters impairs their sense to get cues regarding

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predators. This heightened vulnerability of organisms can cascade through the entire food web, posing risks to the overall ecosystem.

Statement 2 is incorrect: The majority of atmospheric Sulphur is emitted from the ocean in the form of **dimethyl sulphide produced by phytoplankton.** But the increase in **ocean acidification will have an adverse impact** on the development of **phytoplankton**, which will lead to a **low amount of Sulphur emission**.

Statement 3 is correct: As seawater absorbs CO2, it undergoes chemical reactions leading to **increased hydrogen ion concentration**, **causing increased acidity and a relative decrease in carbonate ions.** Ocean acidification is generally associated with **negative impacts on marine organisms, including coccolithophores**. Coccolithophores are **microscopic marine algae**. Coccolithophores, **being calcifying organisms**, may face challenges due to decreased carbonate ions and their overall concentration is more prone to decrease.

Source:
https://oceanservice.noaa.gov/facts/acidification.html#:~:text=Ocean%20acidification%20refers%20to%20a,CO2)%20from%20the%20atmosphere.
Forum IAS, Environment Red book, (Ch-8, Pg: 74)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7344635/
Subject:) Environment
Subtopic:) Ocean acidification and ozone depletion

Q.7) Global Warming Potential (GWP) of a gas is a measure used to estimate, compare and aggregate the relative climate effects of various greenhouse gases. In this context, consider the following gases:

1. Nitrous Oxide (N_2O)
2. Methane (CH_4)
3. Sulfur Hexafluoride (SF_6)
4. Hydrofluorocarbons (HFC-23)

Which of the following options correctly arranges gases in ascending order based on their GWP for a time horizon of 100 years?

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

Ans) c

Exp) Option c is the correct answer.

Greenhouse gases differ in their ability to absorb energy because they have different radiative efficiencies. Global Warming Potentials (GWPs) are used to estimate, compare and aggregate the relative climate effects of various greenhouse gases (GHGs).Each gas has a specific global warming potential (GWP), which allows comparisons of the amount of energy the emissions of 1 ton of a gas will absorb over a given time period, usually a 100-year averaging time, compared with the emissions of 1 ton of CO2. **Gases with high GWP absorbs more energy than gases with lower GWP,** thus contributing more to warming earth.

GWP of different gases is as follows:

GHG

GHG	**GWP for 100 years**
Carbon dioxide (CO2)	1
Methane (CH4)	23
Nitrous Oxide (N2O)	296
Hydrofluorocarbons	12000

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(HFC – 23)
Hydrofluorocarbons 1300
(HFC – 134a)
Sulfur Hexafluoride 22200
(SF6)
Source: Forum IAS, Environment Red book, (Ch-8, Pg: 74)
https://unfccc.int/resource/docs/tp/tp0403.pdf
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.8) Consider the following statements regarding India's Long-Term Low Emission Development Strategies (LT-LEDS):
1. It is formulated based on the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC).
2. It emphasizes India's commitment to phase out the use of coal for energy generation by 2040.
3. It promotes strengthening of social use of forest through decentralized local governance.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
India submitted its Long-Term Low Emission Development Strategy **to the United Nations Framework Convention on Climate Change (UNFCCC), during the 27th Conference of Parties (COP27).** The COP27 was held at Sharm-el-Sheikh, Egypt.
Statement 1 is correct: Parties agreed, **under Article 4.19 of the Paris Agreement of the UNFCCC "to strive to formulate and communicate long-term low greenhouse gas emission development strategies (LT-LEDS),** mindful of Article 2 considering their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.
Statement 2 is incorrect: India has not set a target of phasing out of coal by 2040. Instead, the LT-LEDS emphasizes on the **rationalization of the use of fossil-fuel resources**. It acknowledges that coal will be needed for power and energy, for industrial purposes and to guarantee India's energy security.
Statement 3 is correct: Elements of a Long-Term Low-Carbon Development Strategy related to CO2 Removal and Engineering Solutions, includes:
1) **Empowerment of communities (youth and women) and strengthening of social use through decentralized local governance of forests.**
2) Integrating traditional ecological knowledge of communities with forestry science and state-of-threat technology.
3) Restoration of native biodiverse species mix at the landscape level.
4) Massive afforestation/reforestation at all spatial scales of urban and rural areas, public and institutional lands, river catchments, watershed areas promoting the water-food-energy-forest nexus.
5) Promotion of innovative technologies, finance instruments and private sector engagement with focus on youth entrepreneurship.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1875816
https://moef.gov.in/wp-content/uploads/2022/11/Indias-LT-LEDS-2.pdf
Subject:) Environment

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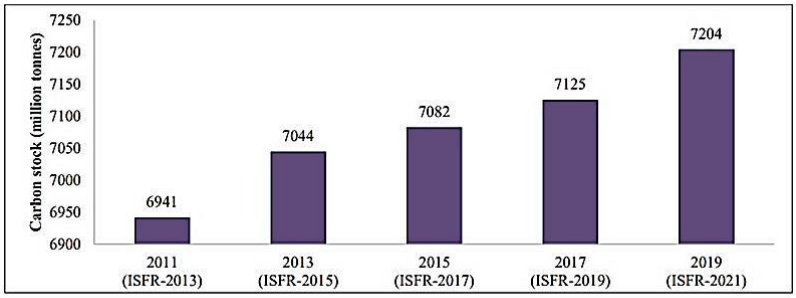
Subtopic:) Climate Change Initiatives, conventions and organization

Q.9) Consider the following statements about Carbon Stock:
1. It is the amount of carbon sequestrated from the atmosphere and stored in the biomass deadwood, soil, and litter in the forest.
2. The carbon stock in India's forests has been consistently increasing since the last 10 years.
3. Among Indian states, Arunachal Pradesh has the maximum amount of carbon stock in its forests.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) c
Exp) Option c is the correct answer.
Forest Survey of India (FSI) regularly assess the carbon stock in India's forests. The practice of assessing carbon stock was started by FSI in 2004 and since 2011, the carbon stock has been estimated regularly on a biennial basis.
Statement 1 is correct: **Carbon stock** can be defined as the amount of carbon sequestrated from the atmosphere and stored in **biomass, deadwood, soil, and litter** in the forest. The pools of carbon stock include **living organisms**, such as trees and other vegetation (referred to as biomass), as well as **non-living organic matter** like deadwood, litter, and soil organic carbon.
Statement 2 is correct: According to the Forest Survey of India, the carbon stock in India's forests has been **consistently increasing since 2011.**

Carbon stock in forests in India has been rising



Source: Based on data of the Forest Survey of India

Hence, the given statement is correct.
Statement 3 is correct: According to the FSI, **Arunachal Pradesh has the maximum carbon stock in forests (1023.84 million tonnes) among the Indian states**. Madhya Pradesh stands at the second position with 609.25 million tonnes of carbon sequestration. Jammu & Kashmir is contributing the maximum per-hectare carbon stock of 173.41 tonnes, followed by Himachal Pradesh (167.0 tonnes), Sikkim (166.2 tonnes) and Andaman & Nicobar Islands (162.9 tonnes).
Source: https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap07.pdf
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.10) Consider the following statements regarding the 'National Mission for a Green India':
1. It is a central sector scheme launched under the National Action Plan on Climate Change (NAPCC).
2. It has set a target of 33% of the country's geographical area to be covered by forest or tree cover.

Which of the statements given above is/ are correct?
a) 1 only

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

Ans) d
Exp) Option d is the correct answer.
The National Mission for a Green India (GIM) aims at responding to climate change by a combination of **adaptation and mitigation measures**. This will help **in enhancing the carbon sinks, adaptation of vulnerable species to climate change, and adaptation of forest dependent communities.**
Statement 1 is incorrect: The National Mission for Green India has been launched under the National Action Plan on Climate Change (NAPCC). However, **it is launched as a centrally-sponsored scheme (and not as a central-sector scheme).** Hence, the given statement is incorrect.
Statement 2 is incorrect: The Mission aims to **increase forest/tree cover on 5 m ha of forest/non-forest lands and improved quality of forest cover on another 5 m ha.** It also aims at:
1) Improved ecosystem services including biodiversity, hydrological services and carbon sequestration as a result of treatment of 10 m ha.
2) Increasing forest-based livelihood income of about 3 million households.
3) Enhanced annual CO2 sequestration by 50 to 60 million tonnes in the year 2020

Its National Forest Policy (NFP) 1988 envisages that 33% of the geographical area of India should be under forest or tree cover.
Knowledge Base:
The National Action Plan on Climate Change (NAPCC) was launched in 2008. It outlines a national strategy to adapt to climate change and enhance the ecological sustainability of India's development path. There are 8 National Missions under NAPCC:
1) National Solar Mission
2) National Mission for Enhanced Energy Efficiency
3) National Mission on Sustainable Habitat
4. National Water Mission
5) National Mission for Sustaining the Himalayan Eco-system
6) National Mission for a Green India
7) National Mission for Sustainable Agriculture
8) National Mission on Strategic Knowledge for Climate Change
Source:
https://static.pib.gov.in/WriteReadData/specificdocs/documents/2021/dec/doc202112101.pdf
Forum IAS, Environment Red book, (Ch-8, Pg: 80)
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.11) Which one of the following statements best describes the term 'Social Cost of Carbon'? It is a measure, in monetary value, of the:
a) long-term damage done by a tonne of CO_2 emissions in a given year.
b) requirement of fossil fuels for a country to provide goods and services to its citizens, based on the burning of those fuels.
c) efforts put in by a climate refugee to adapt to live in a new place.
d) contribution of an individual person to the carbon footprint on the planet Earth.

Ans) a
Exp) Option a is the correct answer.

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The Social Cost of Carbon is usually estimated as the net present value of climate change impacts over the next 100 years (or longer) of one additional tonne of carbon emitted to the atmosphere today. It is the marginal global damage costs of carbon emissions.
The social cost of carbon (SCC) is the central concept for the inclusion of climate change damages in the Cost-Benefit Analysis of public policy and public investments. It measures the present value in monetary terms of the damages incurred when an additional ton of carbon (or any other Greenhouse gas) is released into the atmosphere.
Source: UPSC CSE Pre 2020
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.12) Consider the following pairs:

Convention	Objective
1. Bonn Convention	Global treaty to manage trade in hazardous chemicals.
2. Basel Convention	Control of transboundary movements of hazardous wastes.
3. Rotterdam Convention	Conservation of migratory species

How many of the pairs given above are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) a
Exp) Option a is the correct answer.
Pair 1 is incorrect. The **Bonn** Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or the Bonn Convention) **aims to conserve terrestrial, marine and avian migratory species throughout their range.** It is one of a small number of intergovernmental treaties concerned with the conservation of wildlife and wildlife habitats on a global scale. The Convention's entered into force in 1983.
Pair 2 is correct. The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal** was adopted in 1989 and it came into force in 1992. The Basel Convention establishes standards for the transboundary movement of hazardous waste, solid waste, and municipal incinerator ash, including notice to and written confirmation from the receiving country prior to export.
Pair 3 is incorrect. The Rotterdam Convention is an international treaty designed to facilitate informed decision-making by countries with regard to trade in hazardous chemicals. It establishes a list of covered chemicals and requires parties seeking to export a chemical on that list to first establish that the intended importing country has consented to the import. It also requires that a party seeking to export a chemical that is not listed under the Convention but that is subject to a ban or severe restriction in its own territory must provide notice to the importing country of the proposed export. The Convention entered into force on February 24, 2004.
Source: https://ncert.nic.in/ncerts/l/lebo115.pdf
https://www.eea.europa.eu/help/glossary/eea-glossary/bonn-convention

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https://www.epa.gov/hwgenerators/international-agreements-transboundary-shipments-hazardous-waste
https://www.state.gov/key-topics-office-of-environmental-quality-and-transboundary-issues/rotterdam-convention-on-the-prior-informed-consent-procedure-for-certain-hazardous-chemicals-and-pesticides-in-international-trade/
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.13) Which one of the following statements best describes the term 'carbon fertilization'?
a) Increased temperature of earth due to increased concentration of carbon dioxide in the atmosphere.
b) Increased acidity of oceans due to increased concentration of carbon dioxide in the atmosphere.
c) Increased sequestration of carbon dioxide due to its increased concentration in the atmosphere.
d) Increased photosynthesis and growth of plants due to the increase in concentration of carbon dioxide in the atmosphere.

Ans) d
Exp) Option d is the correct answer.
Carbon fertilization, also known as the carbon dioxide fertilization effect, is the phenomenon where increased levels of atmospheric carbon dioxide (CO_2) enhance the growth and productivity of plants. This effect occurs because plants use CO_2 during photosynthesis to produce energy, and higher concentrations of CO_2 can potentially stimulate plant growth and increase crop yields. However, the extent to which this effect occurs and its long-term implications for ecosystems and agriculture are subjects of ongoing research and debate.
Option a is incorrect: Increased temperature of Earth due to increased concentration of carbon dioxide and other greenhouse gases in the atmosphere, refers to **Global Warming**.
Option b is incorrect: Ocean acidification refers to reduction in the pH and thereby increase in the acidity of the ocean of the ocean over an extended period of time, caused primarily by uptake of carbon dioxide (CO_2) from the atmosphere.
Option c is incorrect: Carbon sequestration is the capturing, removal and storage of carbon dioxide (CO_2) from the earth's atmosphere and storing it in plants, soil,etc. **It is of two types**;
Biological carbon sequestration (BCS); In BCS carbon is stored in the natural environment. This includes what are known as 'carbon sinks', such as forests, grasslands, soil, oceans and other bodies of water. This is also known as an 'indirect' or passive form of sequestration.
Geological carbon sequestration (GCS); In GCS Under this carbon is stored in places such as underground geological formations or rocks. This process is largely artificial or 'direct'
Option d is correct Increased photosynthesis and growth of plants due to the increase in concentration of carbon dioxide (CO2) in the atmosphere, this phenomenon is termed Carbon Fertilization or Carbon Dioxide fertilization effect.
Knowledge Base: The carbon fertilization effect has been reported to be the cause of 44% of Gross primary productivity (GPP) increase since the 2000s.
Studies have shown that Carbon Fertilization causes various advantages like: increased plant growth, improved agricultural productivity, enhanced carbon sequestration, etc.
However, it can also negatively affect the nutrient availability, ecosystem dynamic and long- term sustainability of agricultural systems.
Source: Forum IAS, Environment Red book, Ch-8, Pg: 73
https://www.ars.usda.gov/ARSUserFiles/30123025/Morgan%20207%20CO2%20fertilization-%20When,%20where,%20and%20how%20much-.pdf
https://www.nationalgrid.com/stories/energy-explained/what-carbon-sequestration

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Subject:) Environment
Subtopic:) Mitigation Strategies

Q.14) With reference to the Green Climate Fund (GCF), consider the following statements:
1. It was established during the COP 21 of United Nations Framework Convention on Climate Change (UNFCCC), held at Paris in 2015.
2. The Headquarters of GCF is situated in Geneva.
3. GCF is mandated to invest at least half of its adaptation resources in the most climate vulnerable countries.
How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) a
Exp) Option a is the correct answer.
GCF is the world's largest climate fund dedicated to fight climate change and mandated to support developing countries raise and realize their Nationally Determined Contributions (NDC) ambitions towards low-emissions, climate-resilient pathways.
Statement 1 is incorrect: GCF was established under the **Cancún Agreements of COP-16 of UNFCCC held at Cancun in 2010,** as a dedicated financing vehicle for developing countries within the global climate architecture, serving the Financial Mechanism of the UNFCCC and the Paris Agreement.
Statement 2 is incorrect: The GCF is headquartered in **Songdo, Incheon City, Republic of Korea**.
Statement 3 is correct: GCF is mandated to invest 50% of its resources to mitigation and 50% to adaptation in grant equivalent. At least half of its adaptation resources must be invested in the most climate vulnerable countries (SIDS, LDCs, and African States). The GCF programming strategy recognizes that we must scale up both mitigation and adaptation efforts.
Knowledge Base: GCF operates through a network of over 200 Accredited Entities and delivery partners who work directly with developing countries for project design and implementation. Its partners include international and national commercial banks, multilateral, regional and national development finance institutions, equity funds institutions, United Nations agencies, and civil society organizations.
GCF also serves as the formal financial mechanism for the **Paris Agreement**.
Source: https://www.greenclimate.fund/about
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.15) In the context of India's preparation for climate-smart agriculture, consider the following statements:
1. The 'Climate-Smart village' approach in India is a part of a project led by the climate change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under consultative group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.
Which of the statements given above are correct?
a) 1 and 2 only
b) 2 and 3 only

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c) 1 and 3 only
d) 1, 2 and 3

Ans) d
Exp) Option d is the correct answer.
Statement 1 is correct. The **Climate-Smart Village project in India** is a program of CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The CCAFS started piloting the Climate-Smart Village in 2012 in Africa (Burkina Faso, Ghana, Mali, Niger, Senegal, Kenya, Ethiopia, Tanzania, and Uganda) and South Asia (Bangladesh, India, and Nepal).
Statement 2 is correct. Climate Change, Agriculture and Food Security (**CCFAS) is carried out under CGIAR** (formerly the Consultative Group for International Agricultural Research). **Headquarter** of CGIAR is in Montpellier, **France**. CGIAR is a global partnership that unites international organizations engaged in research about food security.
Statement 3 is correct. International Crops Research Institute for the Semi-Arid Tropics **(ICRISAT) is a CGIAR Research Center**. ICRISAT is a non-profit, non-political public international research organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world.
Source: UPSC CSE Pre 2021
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.16) With reference to Nation Green Hydrogen Mission, consider the following statements:
Statement I: National Green Hydrogen Mission seeks to promote demand entirely on the basis of domestic consumption of Green Hydrogen.
Statement II: Focus on domestic demand of Green Hydrogen will help India in reducing the import of fossil fuels at the same time it will also help India in reducing carbon emissions.
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

Ans) d
Exp) Option d is the correct answer.
The National Green Hydrogen Mission was launched by the Government to make India a hub for production, usage and export of Green Hydrogen and its derivatives. The Mission is being implemented by Ministry of New and Renewable Energy.
Statement-I is incorrect: National Green Hydrogen Mission focuses on demand creation through both export and domestic utilization. Thus, saying that the National Green Hydrogen Mission seeks to promote demand creation entirely on the basis of domestic utilization would be incorrect as it focusses upon export as well.
Statement- II is correct: The overarching **objective of the National Green Hydrogen Mission is to make India a global hub for production, usage and export of Green Hydrogen** and its derivatives. It is expected to create domestic demand and **reduce India's dependence on import of fossil fuels by achieving production capacity of green hydrogen up to 5 MMT** per year. It will in turn can **reduce the import of cumulative ₹ 1 lakh crore worth of fossil fuel by 2030 and is also expected to avert 50 MMT per annum of CO2 emissions.**

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Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1907705
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.17) Consider the following sources of renewable energy:
1. Wind
2. Solar
3. Biomass/Cogeneration
4. Small Hydro

Arrange these sources of renewable energy in descending order of their contribution in terms of installed capacity in India's total energy production.
a) 1 2 3 4
b) 2 1 3 4
c) 1 2 4 3
d) 2 1 4 3

Ans) b
Exp) Option b is the correct answer
India has set a target to achieve 500 GW of energy production from Renewable Source by 2030.
In this regard, India's power generation mix is rapidly shifting towards a more significant share of renewable energy. Today, **India is the world's third largest producer of renewable energy**, with 40 percent of its installed electricity capacity coming from non-fossil fuel sources.
As of Dec 2023, Renewable energy sources, including large hydropower, have a combined installed capacity of 180.79 GW.
The following is the installed capacity for Renewables:
1) **Wind power**: 44.73 GW
2) **Solar Power**: 73.31 GW
3) **Biomass/Co-generation**: 10.2 GW
4) **Small Hydro Power**: 4.98 GW
5) **Waste To Energy** : 0.58 GW
6) **Large Hydro**: 46.88 GW

Source: https://www.investindia.gov.in/sector/renewable-energy
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.18) With reference to Montreal Protocol on Substances that Deplete the Ozone Layer, consider the following statements:
1. It lacks any funding mechanism for its members like Global Environment Facility provides for members of United Nation Framework Convention for Climate Change.
2. Kigali Amendment to the Montreal Protocol phased down Hydrofluorocarbons (HFCs) as these were potent ozone depleting substance.

How many of the statements given above are correct?
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Ans) d
Exp) Option d is the correct answer.

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The Montreal Protocol on Substances that Deplete the Ozone Layer is a global agreement to protect the Earth's ozone layer by phasing out the chemicals that deplete it. This phase-out plan includes both the production and consumption of ozone-depleting substances.

Statement 1 is incorrect: Montreal Protocol on Substances that Deplete the Ozone Layer, have a fund of its own called The Multilateral Fund. **The Multilateral Fund for the Implementation of the Montreal Protocol was established in 1991 under Article 10 of the treaty**. The fund is replenished by contributions from developed countries and administered by Executive Committee of the Multilateral Fund. Its implementing agencies are world Bank, UNDP, UNEP and UNIDO **which help the Fund in delivering financial and technical assistance to the member countries.**

Statement 2 is incorrect: Hydrofluorocarbons (HFCs), are not ozone depleting substances and were introduced as alternatives to ozone depleting substances. The Kigali amendment to the Protocol seeks to phase down HFCs because they have high Global Warming Potential.

Source: https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.19) Consider the following projects:

1. Nuclear power generation plant
2. Projects targeting reduction of air emissions
3. Direct waste incineration plants
4. Installation of wastewater disposal systems
5. Landfill projects

How many of the above projects/plants can be funded by Sovereign Green Bond Scheme of India?

a) Only two
b) Only three
c) Only four
d) All five

Ans) a

Exp) Option a is the correct answer.

Recently, Union Minister for Finance & Corporate Affairs approved the final Sovereign Green Bonds framework of India. This approval will further strengthen India's commitment towards its **Nationally Determined Contribution** (NDCs) targets, adopted under the Paris Agreement, and help in attracting global and domestic investments in eligible green projects.

Categories of projects that can be funded by Sovereign Green Bond of India include various heads viz, Renewable Energy, Energy Efficiency, Clean Transportation, Climate Change Adaptation, Sustainable Water and Waste Management, Pollution Prevention and Control etc..

In the Pollution Prevention and Control category, **Projects targeting reduction of air emissions**, greenhouse gas control, soil remediation, waste management, waste prevention, waste recycling, waste reduction and energy/emission-efficient waste-to-energy are eligible for funding under Sovereign Green Bond. **Hence option 2 is correct.**

Under **Sustainable Water and Waste Management, Projects targeting** Promoting water efficient irrigation systems, **Installation/upgradation of wastewater infrastructure including transport, treatment and disposal systems,** Water resources conservation, Flood defense systems are are eligible for funding under Sovereign Green Bond. **Hence option 4 is correct.**

As per the Sovereign Green Bonds framework of India, **expenditures directly related to following heads are excluded** from obtaining funds from the proceeds of Sovereign Green Bonds.

1) Projects involving new or existing extraction, production and distribution of fossil fuels, including improvements and upgrades; or where the core energy source is fossil-fuel based

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2) **Nuclear power generation (Option 1 is incorrect)**
3) **Direct waste incineration (Option 3 is incorrect)**
4) Alcohol, weapons, tobacco, gaming, or palm oil industries
5) Renewable energy projects generating energy from biomass using feedstock originating from protected areas
6) **Landfill projects (Option 5 is incorrect)**
7) Hydropower plants larger than 25 MW

Knowledge Base:

1) India launched its first sovereign green bonds in November 2022, with the approval of the Union Finance Minister.
2) The framework for the **sovereign green bonds was rated as 'Medium Green' with a 'Good' governance score by CICERO**, an independent and globally renowned second party opinion provider.
3) The sovereign green bonds will help India achieve its Nationally Determined Contribution targets under the Paris Agreement and its net-zero emission goal by 2070.

Source: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1874788
https://dea.gov.in/sites/default/files/Framework%20for%20Sovereign%20Green%20Bonds.pdf
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.20) Consider the following:

1. Seeding the sea with iron.
2. Marine cloud whitening.
3. Stratospheric injection of Sulphur dioxide.
4. Sequestering carbon in terrestrial ecosystem
5. Replacing fossil fuel with biofuel in vehicles
6. Miyawaki method of urban forestation

How many of the above are geo-engineering techniques which helps to mitigate the effects of climate change?

a) Only three
b) Only four
c) Only five
d) All six

Ans) b

Exp) Option b is the correct answer.

Geoengineering techniques, to mitigate the effects of climate change, is divided into two main approaches: **carbon dioxide removal (CDR) and solar radiation management (SRM).** CDR involves removing carbon dioxide from the atmosphere and storing it for a long time. SRM involves reflecting sunlight back into space to reduce the warming effect of greenhouse gases.

1) Solar radiation modification (SRM):
   a. **Seeding the sea with iron technique involves adding iron to the ocean to stimulate the growth of phytoplankton. Phytoplankton, a** microscopic algae that use photosynthesis to convert carbon dioxide into organic matter. By increasing the amount of phytoplankton, more carbon dioxide could be removed from the atmosphere and stored in the ocean, reducing the greenhouse effect and global warming. (**Hence Option 1 is correct**:)
   b. **Marine cloud whitening** technique involves spraying tiny particles, such as sea salt or sulfur, into low-level clouds over the oceans. It is done **to increase their reflectivity and albedo**(fraction of incoming solar radiation that is reflected back to space). By making the clouds

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brighter, more sunlight could be reflected away from the Earth, reducing the amount of solar energy absorbed by the surface and the atmosphere, and thus cooling the planet. **(Hence option 2 is correct.)**

c. **Stratospheric injection of sulfur dioxide technique** involves injecting **sulfur dioxide or other aerosols into the stratosphere**, to create a thin layer of particles that would scatter and reflect some of the incoming solar radiation. This would mimic the cooling effect of large volcanic eruptions, such as the 1991 eruption of Mount Pinatubo in Philippines, which lowered the global temperature by about 0.5 °C (0.9 °F) for several months. **(Hence option 3 is correct)**

2) **Carbon capture and storage (CCS):** It is a geoengineering approach that reduces carbon dioxide emissions by capturing and storing carbon dioxide deep underground. **(Hence option 4 is correct)**

Replacing fossil fuel with biofuel in vehicles and Miyawaki method of urban forestation can be used to mitigate the climate change, but it is not geo-engineering techniques. **(Hence option 5 and 6 are incorrect).**

Knowledge Base: **The Miyawaki method** is a Japanese method for planting forests that can be used in urban areas. Developed in the 1970s by Japanese botanist Akira Miyawaki, the method involves:

1) Soil improvement: Covering the soil with mulch to prevent erosion, dryness, and weed growth.
2) Soil analysis: Carefully analyzing the soil and making adjustments.
3) Planting: Planting two to four different types of indigenous trees within every square meter.
4) Creating diverse ecosystems: Imitating natural processes to create diverse woodland ecosystems.

Source: https://edu.rsc.org/feature/iron-ocean-seeding/2020176.article
https://www.geoengineeringmonitor.org/2021/04/marine_cloud_brightening/
https://csl.noaa.gov/news/2023/390_1107.html#:~:text=One%20such%20potential%20method%20of,forms%20sunlight%2Dreflecting%20sulfate%20aerosols.
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.21) Consider the following statements:

1. "The Climate Group" is an international non-profit organization that drives climate action by building large networks and runs them.
2. The International Energy Agency in partnership with the Climate Group launched a global initiative "EP100".
3. EP100 brings together leading companies committed to driving innovation in energy efficiency and increasing competitiveness while delivering on emission reduction goals.
4. Some Indian companies are members of EP100.
5. The International Energy Agency is the Secretariat to the "Under2 Coalition".

Which of the statements given above are correct?

a) 1, 2, 4 and 5 only
b) 1, 3 and 4 only
c) 2, 3 and 5 only
d) 1, 2, 3, 4 and 5

Ans) b

Exp) Option b is the correct answer.

Statement 1 is correct: The Climate group is an international non-profit founded in 2003, with offices in London, New York, New Delhi, Amsterdam and Beijing. It drives climate action by building large network. Currently its network include over 500 multinational businesses in 175 markets worldwide.

Statement 2 is incorrect: EP100 is a global initiative led by The Climate Group and the Alliance to Save Energy (and not by the International Energy Agency).

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Statement 3 is correct: The Climate Group's global EP100 initiative brings together a growing group of energy-smart companies committed to improving their energy productivity and doing more with less green-house gas emission. By integrating ambitious energy targets into business strategy, leading companies are **driving innovation in energy efficiency and increasing competitiveness while delivering on emissions reduction goals.**

Statement 4 is correct: EP100 has a global reach, with member companies operating in more than 130 markets around the world. India's own Mahindra group is one of the leaders in the ongoing battle to cut energy consumption and carbon dioxide emissions by increasingly switching to renewable energy.

Statement 5 is incorrect: Climate Group is the Secretariat to the Under2 Coalition and not the International Energy Agency and works with governments to accelerate climate action through four work streams:

1) Pathways
2) Policy action
3) Transparency
4) Diplomacy

Source: UPSC CSE Pre 2022

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.22) With reference to 'Greenhouse Gases and Greenhouse effect', consider the following statements:

1. The greenhouse effect occurs mostly in the stratosphere layer of the earth's atmosphere.
2. The warming impact of greenhouse gases is one of the factors responsible for earth being called the Goldilocks planet.

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

Ans) b

Exp) Option b is the correct answer.

Statement 1 is incorrect: The greenhouse effect **occurs in the troposphere**, which is the lower part of the Earth's atmosphere where most of the weather occurs. The greenhouse effect is the process by which greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, trap heat in the atmosphere and warm the planet. The **greenhouse effect does not occur in the stratosphere, but rather occurs in the lower part of the atmosphere, the troposphere**.

Statement 2 is correct: The term "**Goldilocks planet" refers to the idea that the Earth's temperature is just right – not too hot, not too cold** - for life to exist. The cumulative impact of greenhouse gases does play a role in regulating the temperature on Earth, which is why the Earth is sometimes referred to as the "Goldilocks planet".

Knowledge Base:

The **greenhouse effect** is a natural process that occurs when certain gases in the Earth's atmosphere, referred to as greenhouse gases, trap heat from the sun and warm the planet. These gases include carbon dioxide, methane, nitrous oxide, and fluorinated gases. The greenhouse effect is essential for life on Earth, as it helps to maintain the planet's temperature within a range that is suitable for human habitation and other forms of life.

Source: https://www.ncert.nic.in/ncerts/l/kech207.pdf

https://scied.ucar.edu/learning-zone/how-climate-works/greenhouse-effect

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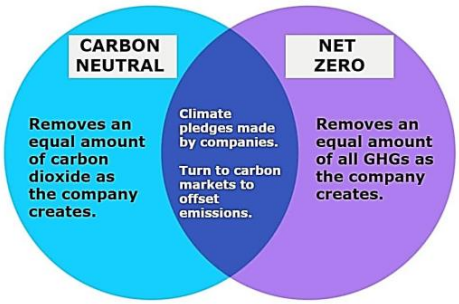
https://climate.nasa.gov/faq/19/what-is-the-greenhouse-effect/
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.23) In context of Climate Change, the term 'Carbon neutrality' refers to:
a) a condition where carbon emissions are eliminated entirely to limit the global temperature.
b) replacing the sources of carbon emissions with renewable sources of energy production.
c) achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered.
d) offsetting carbon emission in one country by financially supporting carbon emission mitigating efforts in another country.

Ans) c
Exp) Option c is the correct answer.
Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. Removing carbon oxide from the atmosphere and then storing it is known as carbon sequestration. In order to achieve net zero emissions, all worldwide greenhouse gas (GHG) emissions will have to be counterbalanced by carbon sequestration. Carbon sink is any system that absorbs more carbon than it emits. The main natural carbon sinks are soil, forests and oceans.
Knowledge Base:
Net zero vs Carbon Neutrality:
1) **Carbon neutrality** means that an organization or a **country balances the amount of carbon dioxide (CO2)** it emits with the amount it removes or offsets from the atmosphere. This can be achieved by reducing emissions, using renewable energy sources, or investing in carbon offset projects.
2) **Net zero** means that an organization or a country **reduces its greenhouse gas emissions to the lowest possible level and offsets** any remaining emissions with removals or offsets. **Net zero covers not only CO2, but also other greenhouse gases** such as methane, nitrous oxide, and fluorinated gases.
3) Therefore, **net zero is a broader and more ambitious concept than carbon neutrality**, as it requires reducing all types of greenhouse gas emissions and achieving a balance between emissions and removals across the entire value chain.



Source: https://carboncredits.com/carbon-neutrality-vs-net-zero/
https://www.europarl.europa.eu/pdfs/news/expert/2019/10/story/20190926STO62270/20190926STO62270_en.pdf
https://www.weforum.org/agenda/2022/08/carbon-neutral-net-zero-sustainability-climate-change/
https://www.unep.org/news-and-stories/story/un-environment-walks-talk-carbon-neutrality#:~:text=Carbon%20neutrality%2C%20or%20having%20a,UN%20Climate%20Change
Subject:) Environment

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Subtopic:) Mitigation Strategies

Q.24) With reference to Nationally Determined Contributions (NDC), consider the following statements:

1. Each Party to the Paris Agreement of UNFCCC is required to set targets under NDC and update it every five years.
2. NDC are binding in nature and represents mandatory pledges made by the countries.
3. As a part of NDC, India has currently committed to reduce Emissions Intensity of its GDP by 33-35% percent by 2030, from 2005 level.

How many of the above statements are correct?

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

Ans) b

Exp) Option b is the correct answer.

Intended Nationally Determined Contributions (INDCs) are national climate action plans submitted by countries to outline their specific strategies and commitments towards addressing climate change.

Statement 1 is correct: Nationally Determined Contributions (NDCs) are commitments made by indi**vidual countries outlining their intended actions to address climate change** and contribute to the global effort of limiting temperature rise, as agreed upon in the **Paris Agreement of 2015 at the UN Climate Change Conference (COP21)**.Each Party to the Paris Agreement is required to establish an NDC and **update it every five years.**

The concept of **Intended Nationally Determined Contributions (INDCs) was introduced at the 2013 Warsaw Climate Conference (COP 19).**

Statement 2 is incorrect: INDCs are **non-binding, and each country voluntarily puts forward its proposed contributions towards mitigating climate change**. While they are not legally binding, they are meant to be transparent, and there is a global expectation for countries to work towards achieving their stated goals.

Statement 3 is incorrect: India has **updated its NDC in 2022 and committed to reduce Emissions Intensity of its GDP by 45% percent by 2030**, from 2005 level. This is an enhancement from the previous commitment of 33-35% in the 2015 NDC.

Knowledge Base:

India's Intended Nationally Determined Contributions (Updated):

1) To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for '**LIFE'– 'Lifestyle for Environment'**
2) To reduce **Emissions Intensity of its GDP by 45 percent by 2030**, from 2005 level.
3) To achieve about **50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030,** with the help of transfer of technology and low-cost international finance including from Green Climate Fund (GCF)
4) To create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.

Source: https://unfccc.int/sites/default/files/NDC/2022-08/India%20Updated%20First%20Nationally%20Determined%20Contrib.pdf

Forum IAS, Environment Red book,

Ch-8, Pg: 79

https://www.wri.org/indc-definition

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https://unfccc.int/process-and-meetings/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,France%2C%20on%2012%20December%202015.
https://climateanalytics.org/publications/intended-nationally-determined-contributions-indcs-opportunity-for-nepal#:~:text=The%202013%20Warsaw%20Conference%20of,context%20of%20the%202015%20agreement.
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.25) With reference to the Global Methane Pledge (GMP), consider the following statements:
1. It was launched at United Nations Climate Change Conference COP26, Glasgow by the European Union and the United States of America.
2. It aims to reduce global methane emissions by at least 30 percent from 2020 levels by 2030.
3. As a member of GMP, India has committed to reduce 50% methane emissions from the agricultural sector by 2030.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
Methane is a powerful greenhouse gas that contributes to climate change and has many sources, such as fossil fuels, agriculture, and waste. Reducing methane emissions can have immediate and significant benefits for the climate, human health, and food security.
Statement 1 is correct: The Global Methane Pledge was launched at **COP26** (COP26 is the 26th United Nations Climate Change Conference, held in Glasgow, Scotland, from 31 October to 13 November 2021) **by the European Union and the United States of America**, and has been joined by over 150 countries.
Statement 2 is correct: The Global Methane Pledge aims to reduce global methane emissions by at **least 30 percent from 2020 levels by 2030**. It has over 150 country participants who together are responsible for 50% of global human-caused methane emissions.
Statement 3 is incorrect: India, the third-largest source of methane emissions, is **not a signatory of the Global Methane Pledge**. According to the Ministry of Environment, Forests and Climate Change, in reply to a Parliament question for not joining the pledge explained that this pledge shifts the CO2 reduction burden to methane reduction, which has a lifetime of just 12 years. As this is against the 6th Assessment Report of the Intergovernmental Panel on Climate Change, which states that the predominant gas responsible for climate change is CO2 which has a lifetime of 100-1,000 years.
Source: https://www.globalmethanepledge.org/#about
https://www.downtoearth.org.in/news/climate-change/cop26-104-countries-promise-to-cut-methane-emissions-what-is-the-global-pledge-about--80059
https://www.thehindubusinessline.com/news/science/why-india-refused-to-sign-the-methane-pledge/article66304537.ece
Subject:) Environment
Subtopic:) Mitigation Strategies

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Q.26) With reference to 'Leadership Group for Industry Transition (LeadIT)', consider the following statements:

1. It was launched by the governments of Sweden and India at the UN Climate Action Summit in 2019.
2. It brings together countries, companies and industry experts to achieve net-zero emissions from heavy industries by 2050.

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

Ans) c

Exp) Option c is the correct answer.

The Leadership Group for Industry Transition (LeadIT) is an initiative that brings together countries and companies that are committed to achieving the Paris Agreement goals by transforming the energy-intensive industries.

Statement 1 is correct: Leadership Group for Industry Transition (LeadIT) was launched by the governments of Sweden and India at the UN Climate Action Summit in September 2019.

Statement 2 is correct: LeadIT aims to bring together countries, companies and industry experts to achieve net-zero emissions from heavy industries by 2050.

Knowledge Base: LeadIT is **supported by the World Economic Forum**. WEF provides strategic guidance and advice to LeadIT members on industry transition issues and opportunities. WEF supports LeadIT in developing and disseminating best practices, tools, and policy recommendations for accelerating industry transition.

Source: https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap07.pdf
https://www.sei.org/projects/leadership-group-for-industry-transition-leadit/#:~:text=The%20Leadership%20Group%20for%20Industry,SEI%20serves%20as%20LeadIT's%20Secretariat.

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.27) In context of Climate Change, the term 'Green Carbon' refers to:

a) Carbon emissions released as a by-product of renewable energy production.
b) Carbon allotropes that do not cause global warming and helps in limiting the climate change.
c) Carbon released during the decomposition of organic matter in landfills.
d) Carbon sequestered from the atmosphere through photosynthesis and stored in terrestrial ecosystem.

Ans) d

Exp) Option d is the correct answer.

Green carbon is the carbon stored by terrestrial ecosystems, including forests and other land-based vegetation. We call it 'green' because carbon is taken up from the atmosphere by **plants through the process of photosynthesis**, which is dependent on the green chlorophyll pigment found in plant leaves. Here, we use the term **green carbon to refer to the carbon sequestered through photosynthesis and stored in natural forests**. Natural forests are defined here as forests that have not been disturbed by intensive human land-use activities, including commercial logging.

Green carbon is different from **blue carbon**, which refers to the carbon stored in the oceans and coastal ecosystems, and from **brown carbon**, which refers to the carbon stored in industrialized

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forests that are managed for timber production. Green carbon is also distinct from **grey carbon,** which is the carbon stored in fossil fuels that are burned for energy and emit carbon dioxide into the atmosphere.
Source: Forum IAS, Environment Red book,
Ch-8, Pg: 76
https://press-files.anu.edu.au/downloads/press/p56611/pdf/sig_green_carbon.pdf
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.28) With reference to the Green Credit Programme (GCP), consider the following statements:
1. It ranks Indian financial institutions based on their credit portfolios for promoting environmentally sustainable activities.
2. The Indian Council of Forestry Research and Education (ICFRE) is responsible for implementing this programme.

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

Ans) b
Exp) Option b is the correct answer.
The Green Credit Programme (GCP) is an innovative market-based mechanism designed to incentivize voluntary environmental actions across diverse sectors, by various stakeholders like individuals, communities, private sector industries, and companies.
Statement 1 is incorrect: The GCP does not rank Indian financial institutions based on their credit portfolios for promoting environmentally sustainable activities. The Green Credit Program (GCP) seeks to **encourage environmentally friendly practices** rooted in tradition and conservation such as the afforestation activities, water conservation, soil improvements etc.
Statement 2 is correct: The Indian Council of Forestry Research and Education (ICFRE) serves as the GCP administrator and responsible for its implementation, management, monitoring, and operation. The ICFRE is an autonomous organization functioning under the Ministry of Environment, Forest and Climate Change (MoEFCC).
Source: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1967476
https://indianexpress.com/article/explained/everyday-explainers/what-is-the-green-credits-scheme-which-pm-modi-mentioned-at-cop28-9050627/
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.29) With reference to the Climate Change Performance Index (CCPI) 2023, consider the following statements:
1. It is published annually by the United Nations Environment Programme (UNEP).
2. The highest weightage in the ranking is assigned to the Greenhouse Gas (GHG) emissions of nations.
3. India has secured a place amongst top 10 positions for past five years continuously.

How many of the statements given above are correct?
a) Only one
b) Only two
c) All three

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d) None

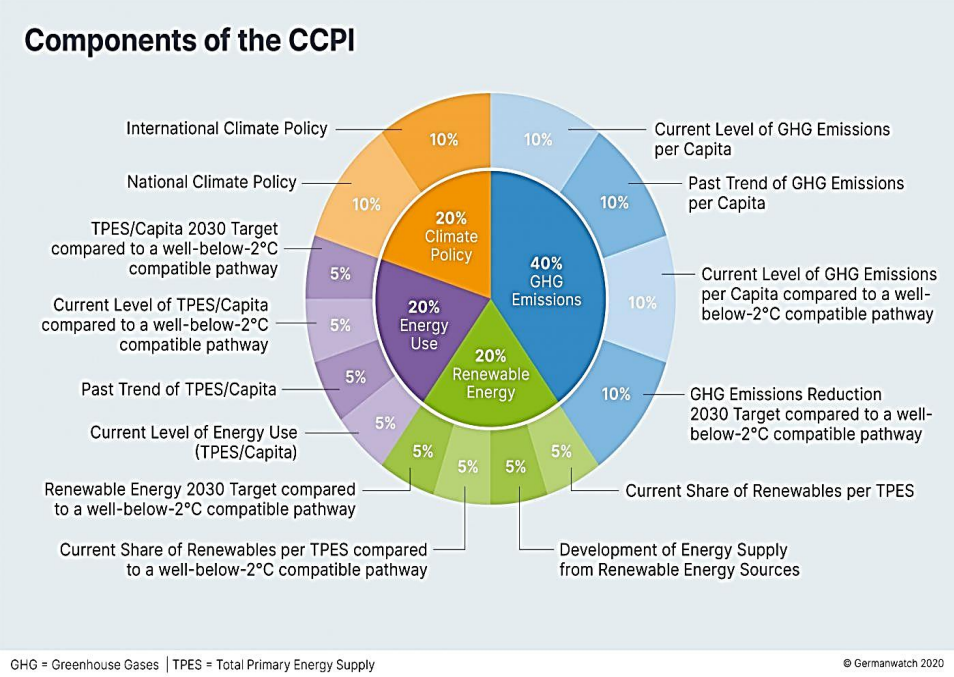
Ans) b

Exp) Option b is the correct answer.

The Climate Change Performance Index (CCPI) has been released each year, monitoring and assessing countries' progress in addressing climate change. It aims to increase transparency in global climate politics. The CCPI facilitates the comparison of climate protection efforts and progress made by individual countries, contributing to a clearer understanding of their commitments and actions in the fight against climate change.

Statement 1 is incorrect: The **Climate Change Performance Index (CCPI)** is an annual index published by the environmental research organization **NewClimate Institute, Germanwatch, and the Climate Action Network**, not by the United Nations Environment Programme (UNEP).

Statement 2 is correct: The Climate Change Performance Index (CCPI) assesses and scores countries according to their progress in climate mitigation. The CCPI evaluates nations across four categories, incorporating 14 indicators: **Greenhouse Gas Emissions (40% of the total score), Renewable Energy (20%), Energy Use (20%), and Climate Policy (20%)**.



Statement 3 is correct: India significantly improved its CCPI ranking, rising from 31st in 2014 to **seventh in 2023, maintaining a top 10 position for the fifth consecutive year**. In the latest CCPI, India secured the seventh position, with Denmark, Estonia, and the Philippines securing the fourth, fifth, and sixth positions, respectively. The **top three positions remained vacant as no country met the criteria to secure those spots**.

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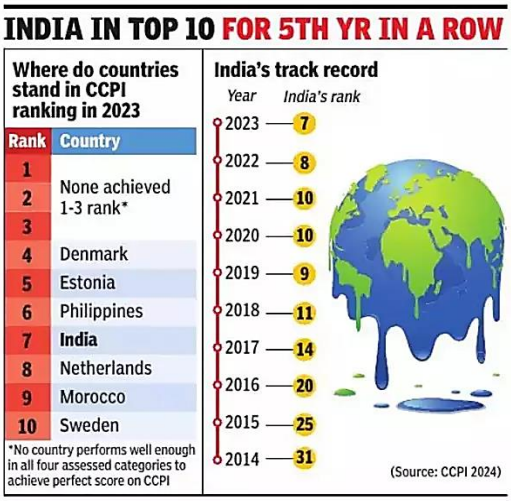

Source: https://www.germanwatch.org/en/CCPI
https://ccpi.org/
https://timesofindia.indiatimes.com/india/india-a-rank-up-now-7th-on-climate-change-performance/articleshow/105849591.cms?from=mdr
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.30) In the context of international climate agreements, how does the 'Global Stocktake' contribute to Climate action?
a) Setting explicit targets for emissions reduction across different countries.
b) Allocating resources for renewable energy initiatives in developing countries.
c) Establishing an international market for carbon trading among countries.
d) Conducting periodic assessments of global progress toward climate goals.

Ans) d
Exp) Option d is the correct answer.
The Global Stocktake, proposed as a five-yearly review of countries' actions to mitigate climate change, serves as a crucial element under the **Paris Agreement**. This agreement mandates that each country present a climate action plan in five-year cycles, with the first global stocktake taking place at COP28 in Dubai.
It aids in actions to mitigate climate change by conducting periodic assessments every five years. This assessment is vital for evaluating global progress toward climate goals. By examining the cumulative impact of climate actions, the Global Stocktake assesses whether these efforts align with the objective of limiting the global **temperature rise to within 2 °C** compared to pre-industrial levels and to pursue additional efforts to limit the temperature increase to **1.5°C.** The findings provide valuable insights into the necessity for further efforts and the extent of additional measures required to effectively address climate change.
Source: https://unfccc.int/topics/global-stocktake/about-the-global-stocktake/frequently-asked-questions-about-the-global-stocktake
https://unfccc.int/cop28/5-key-takeaways#:~:text=The%20'global%20stocktake'%20is%20considered,plans%20due%20by%20February%202025.
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

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Q.31) With reference to 'Global Climate Change Alliance', which of the following statements is/are correct?

1. It is an initiative of the European Union.
2. It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
3. It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

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

Ans) a

Exp) Option a is the correct answer.

Statements 1 and 2 are correct and 3 is incorrect: The **Global Climate Change Alliance (GCCA) is an initiative of the European Union (EU)** to strengthen dialogue and cooperation on climate change with developing countries most vulnerable to climate change.

The GCCA focuses on the Least Developed Countries (LDCs) and the Small Island Developing States (SIDS), which are often the most affected by climate change but have the fewest resources to tackle it. The initiative was launched in 2007 and is coordinated by the European Commission (EC) (and not by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD)).

Source: UPSC CSE Pre 2017

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.32) With reference to Kyoto protocol, consider the following pairs:

Mechanisms	**Description**
1. Clean Development Mechanism	It allows nations to fulfill their emission reduction targets by investing in projects located in developed countries.
2. Joint implementation	It allows developed countries to invest in emission reduction projects in developing countries.
3. Emissions Trading	It allows countries to buy and sell emission permits from each other based on their individual national targets.

How many of the pairs given above are correctly matched?

a) Only one
b) Only two

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c) All three
d) None

Ans) a
Exp) Option a is the correct answer.
The Kyoto Protocol is an international treaty aimed at addressing global climate change by setting legally binding targets for the reduction of greenhouse gas (GHG) emissions. To supplement these efforts, the protocol introduced **three market-based mechanisms namely** the **Clean Development Mechanism (CDM), Joint Implementation (JI), and Emissions Trading (ET).**
Pair 1 is incorrect: The primary aim of the Clean Development Mechanism (CDM) is to allow **developed countries (Annex B countries) with emission reduction commitments** under the Kyoto Protocol to **invest in projects that reduce emissions in developing countrie**s. Such projects can earn saleable **certified emission reduction (CER) credits,** each equivalent to one tonne of CO2, which can be counted towards meeting Kyoto targets of the investing countries.
Pair 2 is incorrect: Joint Implementation permits a country committed to emission reduction targets under the Kyoto Protocol **(Annex B Party) to acquire emission reduction units (ERUs) by participating in projects** that reduce or remove emissions **in another Annex B Party**. Each ERU earned is equivalent to one tonne of CO2 and can be credited toward fulfilling the country's Kyoto target.
Pair 3 is correct: Parties with commitments under the Kyoto Protocol (Annex B Parties) have accepted targets for limiting or reducing emissions. The allowed emissions of these countries are referred to as assigned amount units (AAUs). **Emissions trading enables countries with surplus emission units to sell their excess capacity to those exceeding their targets.**
Note : In its Annex B, the Kyoto Protocol sets binding emission reduction targets for 37 industrialized countries and economies in transition and the European Union. Overall, these targets add up to an average 5 per cent emission reduction compared to 1990 levels over the five year period 2008–2012 (the first commitment period).
For list of Annex B Party countries of Kyoto protocol -
https://unfccc.int/sites/default/files/resource/docs/cop3/l07a01.pdf#page=24
Source: https://unfccc.int/process/the-kyoto-protocol/mechanisms
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.33) With reference to Mission 'Lifestyle for Environment' (LiFE), consider the following statements:
1. It is global mass movement launched during the G20 Rome summit of 2021.
2. It places high emphasis on transitioning from a throwaway culture to a circular economy.
3. India is the first country to include LiFE in its Nationally Determined Contributions.

How many of the statements given above are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
Mission **'Lifestyle for Environment' (LiFE)** seeks to replace the prevailing 'use-and-dispose' economy, characterized by thoughtless and harmful consumption, with a circular economy marked by mindful and intentional utilization.

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Statement 1 is incorrect: The **Mission LiFE** is a global mass movement, launched by the Indian Prime Minister during the 26th United Nations Climate Change Conference of the Parties (**COP26) in Glasgow in 2021 (not during the 2021 G20 Rome summit).** The mission aims to encourage individuals to adopt simple daily actions that can significantly contribute to addressing climate change globally.
Statement 2 is correct: The circular economy plays a crucial role in protecting the environment by promoting sustainable practices that minimize waste, conserve resources, and reduce environmental impact. It promotes a shift towards responsible consumption and production practices, emphasizing the importance of regenerating natural systems rather than depleting them. Due to these factors, LiFE terms **Transitioning from throwaway culture to a circular economy** is imperative
Statement 3 is correct: In 2022, Union government approved India's updated Nationally Determined Contribution (NDC) to be communicated to the United Nations Framework Convention on Climate Change (UNFCCC). The updated NDC seeks to enhance India's contributions towards achievement of the strengthening of global response to the threat of climate change, as agreed under the Paris Agreement. These updated NDC included objectives and aims of LiFE movement in them, and India was the first country in world to do so.
Source: https://missionlife-moefcc.nic.in/
https://www.niti.gov.in/sites/default/files/2022-10/Brochure-10-pages-op-2-print-file-20102022.pdf
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.34) With reference to the National Mission for Sustainable Agriculture (NSMA), consider the following statements:
1. It aims to promote location specific Composite Farming Systems.
2. It aims to double the exports of organic agricultural products from India by 2030.

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

Ans) a
Exp) Option a is the correct answer.
The primary goal of the National Mission for Sustainable Agriculture (NMSA) is to enhance agricultural productivity especially in rainfed areas. The mission strives to enhance agricultural productivity by implementing integrated farming methods, enhancing water management, promoting soil health, and optimizing resource utilization.
Statement 1 is correct: NMSA aims to make agriculture more productive, sustainable, remunerative and climate resilient by **promoting location specific Integrated/Composite Farming Systems**. Composite farming involves the integration of various agricultural activities on a single farm to enhance productivity, sustainability, and resource use efficiency. These systems are adapted to specific ecological and climatic conditions, making them location specific.
Statement 2 is incorrect: Doubling the exports of organic agricultural products from India by 2030 is not a target of NMSA. However, NMSA focuses on promoting organic farming through technical capacity building, technology development and transfer, production of quality organic inputs, awareness creation, quality control of bio-fertilizers and organic fertilizers, organic input resource management, and market development.
Source: https://nmsa.dac.gov.in/
Subject:) Environment

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Subtopic:) Climate Change Initiatives, conventions and organization

Q.35) The increasing amount of carbon dioxide in the air is slowly raising the temperature of the atmosphere, because it absorbs:
a) The water vapour of the air and retains its heat.
b) The ultraviolet part of the solar radiation.
c) All the solar radiations.
d) The infrared part of the solar radiation.

Ans) d
Exp) Option d is the correct answer.
Molecules of carbon dioxide (CO_2) can absorb energy from infrared part of solar radiations and re-emit it. The re-emitted energy travels out in all directions and heats up the atmosphere.
In addition, Carbon dioxide can stay in atmosphere for centuries.
Source: UPSC CSE Pre 2012
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.36) Consider the following chemicals:
1. Chlorofluorocarbons (CFCs)
2. Halons
3. Hydrofluorocarbons (HFCs)
4. Carbon tetrachloride
5. Methyl chloroform
6. Dichlorodifluoromethane
7. Perfluorocarbons (PFCs)

How many of the above are Ozone depleting substances?
a) Only four
b) Only five
c) Only six
d) All seven

Ans) b
Exp) Option b is the correct answer.
Ozone depletion is the gradual thinning of the ozone layer in the Earth's stratosphere caused by ozone-depleting substances. These substances release chlorine and bromine atoms, catalytically destroying ozone molecules. This reduction in ozone concentration permits more harmful UV radiation to reach the Earth's surface, leading to health risks like skin cancer, cataracts, and harm to ecosystems.
Option 1 is correct: Chlorofluorocarbons (CFCs) have had widespread historical applications as **refrigerants, aerosol spray propellants, and solvents**. Unfortunately, **CFCs are major contributors to ozone depletion in the stratosphere.** This depletion has resulted in the formation of the notorious ozone hole, allowing increased penetration of harmful ultraviolet (UV) radiation to reach the Earth's surface.
Option 2 is correct: Halons, primarily utilized historically in fire extinguishers for combating fires in aviation and electronics, also **contribute to ozone layer depletion in the stratosphere**
Option 3 is incorrect: Hydrofluorocarbons (HFCs), commonly employed as **refrigerants in air conditioners, refrigeration systems, and as propellants in aerosol products**. Although they act as a potent greenhouse gas contributing to climate change, they are not **ozone depleting substances.**

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Option 4 is correct: Carbon tetrachloride, once used in the production of CFCs and various industrial applications, is another **ozone-depleting substance** with harmful effects on the stratospheric ozone layer.

Option 5 is correct: Methyl chloroform, historically employed as an **industrial solvent**, is identified as an **ozone-depleting substance** with negative consequences for the ozone layer

Option 6 is correct: Dichlorodifluoromethane (CFC-12), commonly utilized as a **refrigerant**, stands as a **significant contributor to ozone layer depletion,** raising both environmental and health concerns.

Option 7 is incorrect: Perfluorocarbons (PFCs) are used as replacements for CFCs in various applications, as **they do not deplete the ozone layer**. PFCs are a broad range of generally high-global warming potential (GWP) fluorinated gases emitted and/or used during fluorochemical production, aluminum production and electronics manufacturing, but they main application areas are as **substitutes of ozone depleting substances**.

Source: https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances
https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances
https://unfccc.int/process-and-meetings/transparency-and-reporting/methods-for-climate-change-transparency/methodological-issues-relating-to-fluorinated-gases#:~:text=Hydrofluorocarbons%20(HFCs)%20and%20perfluorocarbons%20(,not%20deplete%20the%20ozone%20layer.

Subject:) Environment

Subtopic:) Climate Change and its Impact

Q.37) With respect to "Rejuvenating Watersheds for Agricultural Resilience through Innovative Development" (REWARD) Project, consider the following statement:

1. It aims to strengthen national and state institutions' capacities for implementing data-driven approaches for climate resilient watershed management.
2. It aims to empower farming communities by supporting value chain in specific watersheds of participating states.
3. It is coordinated at the national level by the Department of Land Resources in Union Ministry of Rural Development.

How many of the statements given above are correct?

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

Ans) c

Exp) Option c is the correct answer.

The "Rejuvenating Watersheds for Agricultural Resilience through Innovative Development" **(REWARD) program is a joint initiative of the Department of Land Resources (DoLR)** under the Ministry of Rural Development and **the World Bank** to enhance the resilience and productivity of rainfed agriculture in selected watersheds of India.

Statement 1 is correct: The main Objectives of REWARD program is to **Strengthen capacities of National and State institutions to adopt improved watershed management** by implementing new science and data-driven approaches for climate resilient watershed management.

Statement 2 is correct: It aims to **s**trengthen capacities to adopt improved watershed management for increasing farmers' resilience and support value chains in selected watersheds of participating states.

Statement 3 is correct: The national coordination role of REWARD program is borne by **Department of Land Resources (DoLR)** under the Ministry of Rural Development in Union Government.

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Source: https://uasbangalore.edu.in/images/REWRAD-Project-English.pdf
https://pib.gov.in/PressReleasePage.aspx?PRID=1927669
https://pib.gov.in/PressReleasePage.aspx?PRID=1799348
https://dolr.gov.in/sites/default/files/Financial%20Management%20Expert-merged_0.pdf
https://dolr.gov.in/sites/default/files/DoLR%20revised%20Consolidated%20ESSA%20report%20of%20REWARD%20Programme-converted.pdf
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.38) With reference to the Zero Budget Natural Farming (ZBNF), consider the following statements:
1. It helps in improving aeration, humus content and water holding capacity of the soil.
2. Unlike Organic Farming, ZBNF is capital intensive due to its need for a modified agroecosystem.
3. Haryana is declared India's first 100% ZBNF state in the year 2024.
How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) a
Exp) Option a is the correct answer.
Zero Budget Natural Farming (ZBNF) was first propagated by **Subhash Palekar** in mid1990's and was officially introduced in National Budget 2019-2020. It promotes sustainable farming practices and believes in growing crops in tune with nature.
Statement 1 is correct: Two of the four elements of ZBNF are Jiwamrita and mulching, and their application increases aeration, improves humus content, water availability and water holding capacity of the soil.
Statement 2 is incorrect: **Organic farming can be capital-intensive due to the requirement of bulk organic manures and modified agroecosystems**. In contrast, ZBNF is almost zero cost or extremely low-cost with locally made preparations. ZBNF is mostly a "**the natural way of farming**" or "**do nothing farming**", meaning it discourages modifications in the existing farm like ploughing, tilting, applying bulk organic manures or weeding.

Statement 3 is incorrect: In 2016, the Government of **Andhra Pradesh launched** a scale-out plan to transition 6 million farms/farmers cultivating 8 million hectares of land from conventional synthetic chemical agriculture to Zero-Budget Natural Farming (ZBNF) by 2024, this would have made Andhra Pradesh India's first 100 per cent natural farming state. **As of now, no state in India is declared as 100 percent ZBNF state.**

ZERO BUDGET NATURAL FARMING	ORGANIC FARMING
Avoids use of all sorts of fertilisers	Organic fertilisers are allowed
Avoids use of ploughing, tilling, weeding and pruning	Basic agricultural practices like ploughing, tilling, weeding are performed
Avoids use of compost, rather ZBNF encourages decomposition of organic matter by microbes and earthworms	Manures like compost, vermicompost are used on farmlands
Less costly farming method	Expensive due to requirement of bulk manure

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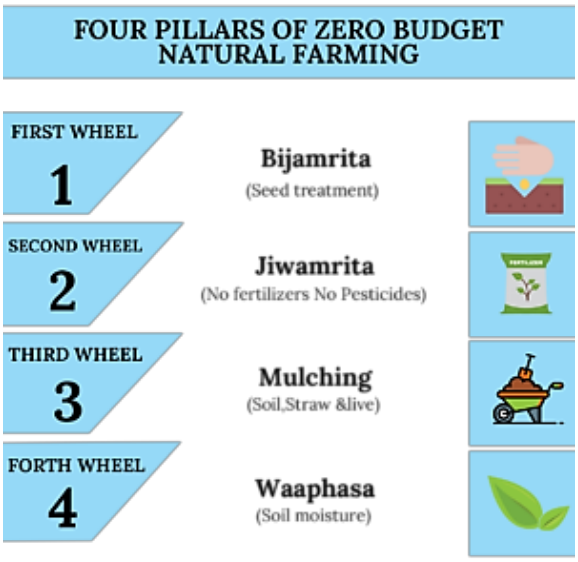
Knowledge Base: ZBNF avoids and discourages use of external inputs like chemical fertilizers and pesticides, and promotes use of natural fertilizers like cow dung, to ensure chemical free agriculture and reduce input cost to zero and thereby enhancing the farmers income and retaining soil fertility

Four main Elements and Model of ZBNF are:.



1) **Bijamrita:** It is an organic seed treatment and it effectively protects young roots from fungus and soil-borne and seed-borne diseases. (Jeevamrutha and Bijamrita are prepared from a mixture of desi cow dung & urine, jaggery, etc.)
2) **Jiwamrita/jeevamrutha**: it is a fermented microbial culture. It adds nutrients to the soil and also acts as a catalytic agent to promote the activity of microorganisms and earthworms in the soil and also helps to prevent fungal and bacterial plant diseases
3) **Acchadana/Mulching**: Mulching is the process of covering the top soil with crop wastes/organic waste or with cover crops
4) **Whapasa/Moisture**: Whapasa is the condition where there are both air molecules and water molecules present in the soil. It involves reducing irrigation, irrigating only at noon, in alternate furrows

Source: Forum IAS, Environment Red book, Ch-8, Pg: 85
https://krishi.icar.gov.in/jspui/bitstream/123456789/27214/1/46-2017-18.pdf
https://vikaspedia.in/agriculture/best-practices/sustainable-agriculture/climate-smart-agriculture/zero-budget-natural-farming-in-andhra-pradesh#:~:text=The%20Government%20of%20Andhra%20Pradesh%20has%20launched%20a%20scale%2Dout,chemical%2Dfree%20agriculture%20by%202024.
https://www.unep.org/news-and-stories/press-release/andhra-pradesh-become-indias-first-zero-budget-natural-farming-state
Subject:) Environment
Subtopic:) Mitigation Strategies

Q.39) With reference to Energy Conservation Building Code (ECBC), consider the following statements:

1. It is a flagship programme of the Ministry of New and Renewable Energy.
2. For a commercial building to be ECBC compliant, it needs to demonstrate minimum energy savings of 50%.
3. In India, ECBC is designed for both commercial and residential buildings.

How many of the above statements are correct?

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

Ans) a
Exp) Option a is the correct answer.
ECBC was launched in May 2007, as the first step towards promoting energy efficiency in the commercial building sector. It sets minimum energy standards for new commercial buildings having a connected load of 100 kW or contract demand of 120 kVA or more.
Statement 1 is incorrect: The ECBC is a flagship programme of the **Bureau of Energy Efficiency (BEE)**, which comes under the administrative control of the **Ministry of Power**.
Statement 2 is incorrect: In order for a building to be considered ECBC-compliant, it would need to demonstrate minimum energy savings of 25%. Additional improvements in energy efficiency performance would enable the new buildings to achieve higher grades like ECBC Plus or Super ECBC status leading to further energy savings of 35% and 50%, respectively.
Statement 3 is correct: In India, the ECBC have been formulated for both- the commercial as well as residential buildings.
For commercial buildings: It was launched in 2017 titled as the 'Energy Conservation Building Code' This sets minimum energy standards for new commercial buildings.
For residential buildings: BEE also launched an Energy Conservation Building Code for residential buildings. It is known as, **'Eco Niwas Samhita 2018'.**
Knowledge Base: **BEE:** It is **a Statutory body** established in March 2002**,** under the provisions of the **Energy Conservation act 2001. It** comes under the administrative control of the Ministry of Power.
ECO NIWAS SAMHITA: Ministry of Power launched the Energy Conservation- New Indian Way for Affordable & Sustainable Homes (ECO Niwas) Samhita 2018, an Energy Conservation Building Code For Residential Buildings (ECBC-R) to give a further fillip to India's energy conservation efforts.
ECBC 2017: Updated version of ECBC was launched in 2017, which had additional priorities of renewable energy integration, ease of compliance, inclusion of passive building design strategies and flexibility for the designers.
ECBC 2017 is one of the first building energy codes to recognize beyond code performance.
Source: Forum IAS, Environment Red book, Ch-8, Pg: 83
https://beeindia.gov.in/en/energy-conservation-building-code-ecbc
https://pib.gov.in/newsite/PrintRelease.aspx?relid=165748.
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.40) With reference to Climate and Clean Air Coalition, consider the following statements:
1. The Coalition is a voluntary partnership aimed at reducing short-lived climate pollutants that drive both climate change and air pollution.
2. India is one of the founding members of Climate and Clean air coalition.
3. Its aims to reduce more than 90 percent of the global use of Hydrofluorocarbons (HFCs) by 2050, compared to 2010 levels.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

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Ans) a

Exp) Option a is the correct answer.

The Climate and Clean Air Coalition (CCAC) convened a High-level Ministerial on 8 December,2023 during the UN Climate Change Conference (UNFCCC COP 28) in Dubai, United Arab Emirates (UAE). The annual event saw renewed pledges of financial support and calls for faster action from its members. The Clean Air Flagship Report requested by CCAC partners at COP 27, was formally launched to mobilize partnerships and ensure clean air.

Statement 1 is incorrect: CCAC is **voluntary partnership of over 160 governments, intergovernmental organizations, and non-governmental organizations, working** to reduce powerful **short lived climate pollutants (SLCPs)** – methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone – that drive both climate change and air pollution.

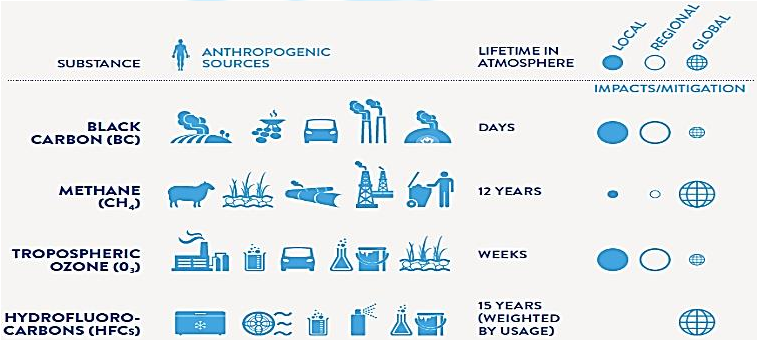
Statement 2 is incorrect: CCAC was established in 2012 and India was not it's founding member and joined it in 2019, becoming the 65th country to join the CCAC.

Statement 3 is correct: The CCAC Strategy 2030 has envisaged to harness the concerted global efforts to implement known practices and existing technologies potential to significantly reduce short-lived climate pollutants. **It aims to achieve global reductions of** 40 percent of methane by 2030 compared to 2010; up to 70percent of black carbon by 2030 relative to 2010; and **99.5 percent of HFCs by 2050 compared to 2010.**

Knowledge Base: CCAC's initial focus is on methane, black carbon, and HFCs. The Coalition's objectives are to address short-lived climate pollutants by:

1) Raising awareness of short-lived climate pollutant impacts and mitigation strategies
2) Enhancing and developing new national and regional actions, including by identifying and overcoming barriers, increasing capacity, and mobilizing support
3) Promoting best practices and showcasing successful efforts
4) Improving scientific understanding of short-lived climate pollutant impacts and mitigation strategies

Short Lived Climate Pollutants: Short lived climate pollutants are powerful climate forces that remain in the atmosphere for a much shorter period of time than carbon dioxide, yet their potential to warm the atmosphere can be many times greater. The short lived climate pollutants like black carbon, methane, tropospheric ozone and hydrofluorocarbons (HFCs) are the most important contributors to anthropogenic global warming after carbon dioxide responsible for up to 45% of current global warming.



Long Lived Climate Pollutants: includes those Greenhouse Gases that remain in the atmosphere for a very longer period of time and stay in the atmosphere for many years before they degrade or are absorbed. It includes carbon dioxide, Nitrous oxide,etc.

Source: https://www.ccacoalition.org/content/climate-and-clean-air-coalition
https://www.unep.org/news-and-stories/press-release/india-joins-climate-and-clean-air-coalition
https://sdg.iisd.org/news/ccac-ministerial-sees-new-pledges-for-action-on-methane/

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https://www.ccacoalition.org/sites/default/files/resources//CCAC-NOV2021-02A_2030-Strategy.pdf
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.41) The Partnership for Action on Green Economy (PAGE), a UN mechanism to assist countries transition towards greener and more inclusive economies, emerged at:
a) The Earth Summit on Sustainable Development 2002, Johannesburg
b) The United Nations Conference on Sustainable Development 2012, Rio de Janeiro
c) The United Nations Framework Convention on Climate change 2015, Paris
d) The World Sustainable Development Summit 2016, New Delhi

Ans) b
Exp) Option b is the correct answer.
The Partnership for Action on Green Economy (PAGE) was launched in 2013 as a response to the call at United Nations Conference on Sustainable Development 2012 Rio+20 to support those countries wishing to embark on greener and more inclusive growth trajectories. PAGE seeks to put sustainability at the heart of economic policies and practices to advance the 2030 Agenda for Sustainable Development.
It brings together the expertise of five UN agencies – UNEP, ILO, UNIDO, UNDP and UNITAR – and working closely with national governments.
Source: UPSC CSE Pre 2018
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.42) With reference to Black Carbon, consider the following statements:
1. It is a long-lived climatic pollutant.
2. It accelerates the melting of glaciers by reducing its surface albedo.
3. It is formed due to incomplete combustion of fossils fuels and wood.
How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) b
Exp) Option b is the correct answer.
Black carbon, commonly known as soot, is a component of fine particulate air pollution ($PM_{2.5}$). Black carbon warms the atmosphere because it is very effective at absorbing light. It exacerbates warming of the air and surfaces in regions where it is concentrated, altering weather patterns and ecosystem cycles.
Statement 1 is incorrect: Black carbon is short-lived climatic pollutant and remains only for days to weeks in the atmosphere. Thus, the effects of black carbon on atmospheric warming disappear within months of reducing emissions.
Statement 2 is correct: Black carbon absorbs sunlight even more than carbon dioxide, and heats the air directly. **When it is deposited on snow, it reduces it's albedo (the ability to reflect sunlight), and heats the surface directly, leading to the melting of ice and glaciers.**
Statement 3 is correct: It is formed by the incomplete combustion of wood and fossil fuels, a process which also creates carbon dioxide (CO_2), carbon monoxide, and volatile organic compounds

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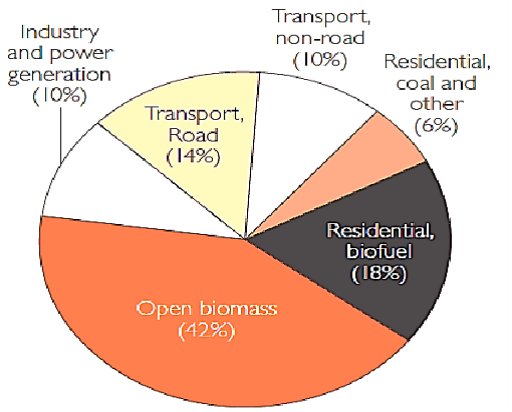
Knowledge Base: **India and China** are the largest emitters of black carbon in the world. Black carbon also causes human morbidity and premature mortality.
Emissions of black carbon are the second strongest contribution to current global warming after carbon dioxide emissions.
SOURCES OF BLACK CARBON:



Source: Forum IAS, Environment Red book, Ch-8, Pg: 74
https://www.ccacoalition.org/short-lived-climate-pollutants/black-carbon
https://en.wikipedia.org/wiki/Black_carbon
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.43) Consider the following statements:
Statement-I: The depletion of the ozone layer is more severe in Antarctica region than in the Arctic region.
Statement-II: The Antarctic region experiences lower average winter temperatures than the Arctic region, resulting in significant development of Polar Stratospheric Clouds (PSCs) in Antarctica.
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.

Ans) a
Exp) Option a is the correct answer.
Statement-I is correct: **Ozone depletion is more severe in Antarctica compared to the Arctic**. The primary reason is the presence of the Antarctic **ozone hole**, a substantial seasonal thinning of the ozone layer over Antarctica. This depletion is linked to the release of ozone-depleting substances (ODS), including chlorofluorocarbons (CFCs) and other similar compounds.
Statement-II is correct: **In the winter season**, both polar regions experience **their lowest air temperatures in the lower stratosphere.** In a typical year, the average daily minimum temperatures over Antarctica can plummet to as low as −92°C in July and August. Conversely, over the Arctic, these minimum values hover around −80°C in late December and January. **The formation of Polar Stratospheric Clouds (PSCs) in the ozone layer occurs when winter minimum temperatures dip below the threshold of approximately −78°C**. On average, this temperature condition persists for 1 to

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2 months over the Arctic and around 5 months over Antarctica annually. **This leads to more formation of PSCs over Antarctica.**

Polar Stratospheric Clouds (PSCs) are special clouds found in the polar regions, particularly during the winter when the polar vortex occurs. These clouds contain water, nitric acid, and/or sulfuric acid. **They are more prominent at the South Pole or Antarctica**. PSCs contribute to ozone depletion because **they trigger chemical reactions that produce active chlorine**. This active chlorine, in turn, accelerates the process of ozone depletion. Hence, both statements are correct and statement-II is the correct explanation for Statement-I.

Source: Forum IAS, Environment Red book, (Ch-8, Pg: 76)

Subject:) Environment

Subtopic:) Climate Change and its Impact

Q.44) Consider the following conventions/protocols:

1. Convention on Biological Diversity (CBD)
2. Minamata Convention on Mercury
3. Ramsar Convention on Wetlands.
4. United Nations Convention to Combat Desertification (UNCCD)
5. Montreal Protocol
6. United Nations Framework Convention on Climate Change (UNFCCC)

The Global Environment Facility (GEF) serves as a formal financial mechanism to how many of the above conventions/Protocols?

a) Only three
b) Only four
c) Only five
d) All six

Ans) b

Exp) Option b is the correct answer.

The Global Environment Facility (GEF), established on the eve of the **1992 Rio Earth Summit**, is a partnership of 18 agencies — including United Nations agencies, multilateral development banks, national entities and international NGOs — working with **186 countries (including India)** to address the world's most challenging environmental issues.

Its secretariat is based in **Washington, D.C.** The GEF provides funding to assist developing countries in meeting the objectives of international environmental conventions.

Option 1 is correct: GEF is the designated institutional structure operating the financial mechanism of the **Convention on Biological Diversity (CBD;)** it applies the guidance, including policy, strategy, program priorities, and eligibility criteria relating to access to and use of its resources from the Conference of the Parties.

Option 2 is correct: The GEF is the main financial mechanism of **Minamata Convention** on Mercury. The financial mechanism was established under Article 13 of the Convention text, and the First Conference of the Parties (COP-1) defined its guidelines in 2017, on strategies, policies, and eligibility for access to its resources.

Option 3 in incorrect: The GEF does not serves as the financing mechanism for Ramasar Convention. The Secretariat of **Ramsar Convention** works actively with Contracting Parties, the private sector, and multilateral funds to mobilize financial resources to support national and regional activities that promote the conservation, wise use and restoration of wetlands.

Option 4 is correct: On September 2003, the Conference of the Parties accepted the GEF as a financial mechanism of **the UNCCD**. The funds allocated by the GEF, support activities that address the issue of desertification and deforestation.

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Option 5 is incorrect: The GEF does not serves as the financing mechanism of **Montreal Protocol**, however it supports implementation of the Protocol in Countries with Economies in Transition.
Option 6 is correct: Under the U**NFCCC and the Kyoto Protocol**, developed country (Annex II Parties) provide financial resources to assist developing country Parties for implementing the Convention. To facilitate this, the Convention designated the GEF as the financial mechanism, subject to review every four years. The GEF also serves as the financial mechanism to the **Paris Agreement**, in accordance with the Article 9 of the agreement.
Knowledge Base:Apart from the conventions mentioned above the GEF also serves as the financial mechanism to the **Stockholm Convention on Persistent Organic Pollutants (POPs).**
Source: Forum IAS, Environment Red book, Ch-11, Pg: 107.
https://www.thegef.org/partners/conventions#:~:text=The%20GEF%20serves%20as%20a,and%20Minamata%20Convention%20on%20Mercury.
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.45) The scientific view is that the increase in global temperature should not exceed 2° C above preindustrial level. If the global temperature increases beyond 3° C above the pre-industrial level, what can be its possible impact/impacts on the world?
1. Terrestrial biosphere tends toward a net carbon source.
2. Widespread coral mortality will occur.
3. All the global wetlands will permanently disappear.
4. Cultivation of cereals will not be possible anywhere in the world.

Select the correct answer using the code given below:
a) 1 only
b) 1 and 2 only
c) 2, 3 and 4 only
d) 1, 2, 3 and 4

Ans) b
Exp) Option b is the correct answer.
Options 1 and 2 are correct: If the global temperature increases beyond 3°C above the preindustrial level the terrestrial biosphere which plays an important role in regulating atmospheric composition would tend towards a net carbon source. Also, with increase in temperature mass coral bleaching would occur leading to widespread coral mortality.
Options 3 and 4 are incorrect: Saying tht the global wetlands will permanently disappear and cultivation of cereals will not be possible anywhere in the world would be very extreme statements. As temperate regions can still survive with increase in temperature.
Source: UPSC CSE Pre 2014
Subject:) Environment
Subtopic:) Climate Change and its Impact

Q.46) Consider the following statements with reference to Perform Achieve and Trade (PAT) Scheme:
1. It aims to reduce Specific Energy Consumption (SEC) in energy intensive industries.
2. It allows for the issuance and trading of Energy saving certificates which can be sold only on electricity exchanges.
3. Central Electricity Regulatory Commission (CERC) is the designated market regulator for trading of Energy Saving Certificates (ESCerts), under the PAT scheme.

How many of the statements given above are correct?
a) Only one

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b) Only two
c) All three
d) None

Ans) c
Exp) option c is the correct answer.
The Perform Achieve and Trade (PAT) scheme is a flagship programme under **National Mission for Enhanced Energy Efficiency (NMEEE)**. PAT scheme is based on market mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded. The excess energy savings are converted into tradable instruments called Energy Saving Certificates (ESCerts) that are traded at the Power Exchanges. The two Power Exchanges such as India Energy Exchange (IEX) and Power Exchange India Limited (PXIL) provide the trading platform where the Designated Consumers (DCs) who fall short of their compliance, bid for purchase of ESCerts
Statement 1 is correct: Perform, Achieve and Trade (PAT) is a regulatory instrument to reduce Specific Energy Consumption (SEC) in energy intensive industries, with an associated market based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded. PAT is a mechanism designed to achieve the required energy efficiency in energy intensive sectors. Energy consumption norms and standards are set by the BEE forintensive industry sectors. Selected industries from energy intensive sectors based on specified threshold levels are identified as Designated Consumers (DCs) within certain key sectors and are required to comply with the notified norms, rules and regulations framed under Energy Conservation (EC) Act, 2001.
Statement 2 is correct: The trading of energy saving certificates (ESCerts) is central to the PAT programme and serves as an incentive to reach or surpass the mandatory targets. **The ESCerts, equivalent to 1 tonne of oil equivalent (toe) of energy savings, are given based on quantified energy savings verified by an accredited energy auditor**. The ESCerts are **awarded after a Designated Consumers (D.C.) surpasses its target and can then be sold to another Designated Consumer (D.C.) that has failed to achieve its target**, the price for which is determined through market supply and demand. The ESCerts can also be banked for next PAT cycles of the respective DC to contribute towards meeting future targets as the PAT programme expands.The **Central Electricity Regulatory Commission acts as the market regulator by defining the regulatory framework for trading of the ESCerts, while the Power System Operation Corporation is responsible for the centralized ESCert registry**. The **Bureau of Energy Efficiency is the administrator and developed a platform to manage the ESCert trading process**. ESCerts are to be **traded only on electricity exchanges such as IEX and PXIL.** Hence starting with April 2017, the Indian Energy Exchange and the Power Exchange of India are managing ESCert trading.
Statement 3 is correct: Central Electricity Regulatory Commission (CERC) is the designated market regulator for trading of ESCerts, under the PAT scheme.
Knowledge Base: PAT Scheme is implemented in cycles of 3 years each where the Designated Consumers (DCs) are assigned SEC reduction targets. Upon verification of their performance in the assessment year by third party verifying agencies, the issuance or obligation to purchase ESCerts is carried out by Bureau of Energy Efficiency after scrutiny of the performance.
PAT scheme covered about **13 energy-intensive sectors**. Sectors included are thermal power plants (TPP), cement, aluminium, iron and steel, pulp and paper, fertiliser, chlor-alkali, petroleum refineries, petrochemicals, distribution companies, railways, textile and commercial buildings (hotels and airports)
NMEEE: is one of the eight missions under the National Action Plan on Climate Change(NAPCC). NMEEE consist of four initiatives to enhance energy efficiency in energy intensive industries which are as follows;

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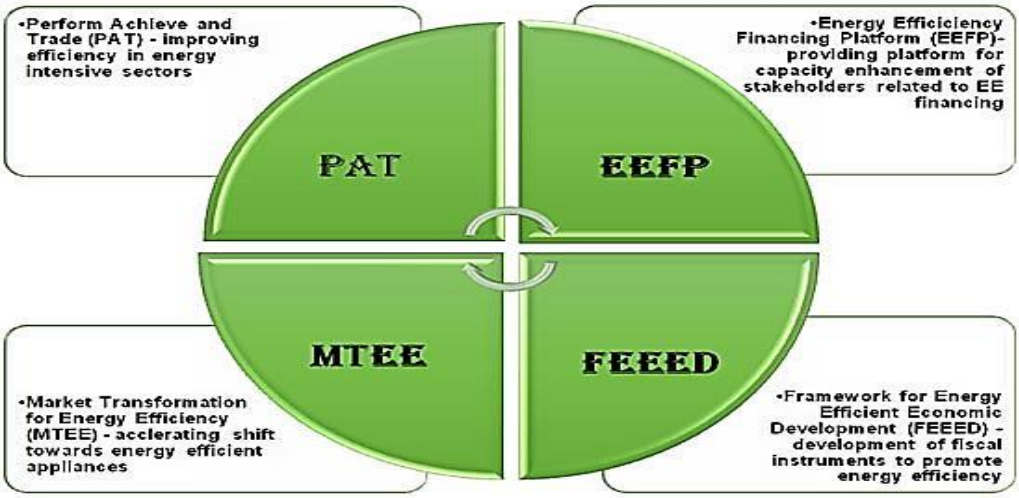

BEE: Statutory body under the **Ministry of Power** created in **March 2002** under the provisions of th **2001 Energy Conservation Act.** It's function is to develop programs which will **increase the conservation and efficient use of energy in India.**

CERC: statutory body functioning under sec – 76 of the Electricity Act 2003.

Functions of CERC;

(1) To regulate the tariff of generating companies owned or controlled by the Central Government; (2) To regulate the inter-State transmission of electricity; (3) To determine tariff for such transmission of electricity.

Source: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1811051

https://beeindia.gov.in/en/programmes/nmeee

https://beeindia.gov.in/sites/default/files/press_releases/Brief%20Note%20on%20PAT%20Scheme.pdf

https://www.iexindia.com/products.aspx?id=vlVO3VPqpMA%3D&mid=Gy9kTd80D98%3D

https://www.iea.org/policies/1780-perform-achieve-trade-pat-scheme

Subject:) Environment

Subtopic:) Climate Change Initiatives, conventions and organization

Q.47) In the context of Ocean Acidification, consider the following factors:

1. Increased eutrophication process in the Ocean.
2. Increased Sulphur dioxide (SO2) emissions from ships.
3. Increased rate of Volcanic activity.
4. Change in ocean circulation patterns.

How many of the factors given above tend to increase the 'Ocean Acidification'?

a) Only one

b) Only two

c) Only three

d) All four

Ans) d

Exp) Option d is the correct answer.

Ocean acidification refers to the **process of decrease in pH level of the oceans**, primarily driven by the increased uptake of Carbon Dioxide (CO2) gasses from the atmosphere. When CO2 is absorbed by seawater, a series of chemical reactions occur resulting in the increased concentration of hydrogen ions. This process has far reaching implications for the ocean and the creatures that live there.

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Statement 1 is correct: Eutrophication process in the Ocean can increase the acidity of the Ocean. Eutrophication leads to **large algal blooms and the algae eventually dies and sinks to the bottom of the oceans**. Bacteria which feed on these dead algae consume oxygen and release CO2 into the Ocean. This increase in CO2 causes an increase in hydrogen ions and decrease in pH level of the ocean thus causes ocean acidification.

Statement 2 is correct: The **Sulphur dioxide (SO2) emissions from ships can further ocean acidification** with a rate that is twofold with respect to that caused by carbon dioxide (CO2) emissions.

Statement 3 is correct: Over extended periods, gradual changes in the carbon cycle can impact ocean acidity across thousands to millions of years. For instance, a **sustained rise in volcanic activity will elevate atmospheric CO2 levels, consequently intensifying ocean acidity.**

Statement 4 is correct: Changes in ocean circulation patterns can affect the pH of surface waters. Upwelling, for example, transports acidic water from deep inside the ocean to the top. Deep waters are more acidic than surface waters because the CO2 produced by deep-sea organisms during respiration is not used by photosynthesis due to the lack of sunlight in the deep.

Source: Forum IAS red book - Chapter :CLIMATE CHANGE (pg no 81)
https://ugc.berkeley.edu/background-content/ocean-acidification/#:~:text=Ocean%20temperature%2C-,because,-the%20amount%20of
https://earthobservatory.nasa.gov/features/OceanCarbon#:~:text=However%2C%20as%20water-,temperature,-increases%2C%20its
Subject:) Environment
Subtopic:) Ocean acidification and ozone depletion

Q.48) Consider the following statements:

1. All the member countries of the United Nations are eligible to join the International Solar Alliance.
2. The financial assistance extended by India to the International Solar Alliance is categorized within the capital expenditure of the Government of India's Annual Financial statement.
3. Global Solar Facility of International Solar Alliance aims to accelerate solar investments exclusively in the countries lying between the tropics.

How many of the above statements are correct?
a) Only one
b) Only two
c) All three
d) None

Ans) a
Exp) Option a is the correct answer.
The **International Solar Alliance** (ISA) is a treaty-based inter-governmental organization working to create a global market system to tap the benefits of solar power and promote clean energy applications.
The ISA was conceived as a joint effort by India and France to mobilize efforts against climate change through deployment of solar energy solutions. It was conceptualized on the side-lines of the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015.

Statement 1 is correct: The membership of ISA was initially limited to countries which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn, but in 2020, the **membership was opened to all the UN member states.**

Statement 2 is incorrect: India is providing assistance of Rs.100 crore per year to International Solar Alliance for 2022-23, 2023-24 and 2024-25 to help energy transition, especially in developing and

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emerging economies. **Contributing to International bodies are accounted under revenue expenditure not capital expenditure under the Budget (Annual financial document).**

Statement 3 is incorrect: The Global Solar Facility (GSF) is a **payment guarantee fund that aims to stimulate solar investments in underserved regions, particularly in Africa and not to accelerate solar investments exclusive in the countries lying between the tropics**. The GSF will primarily focus on rooftop solar, productive use solar, and decentralized solar solutions.

Source: https://energy.economictimes.indiatimes.com/news/renewable/chile-becomes-95th-member-of-international-solar-alliance/105024385
https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap07.pdf
https://www.livemint.com/industry/energy/international-solar-alliance-to-increase-viability-gap-funding-for-solar-projects-to-35-11698763986257.html
https://www.thehindu.com/news/international/observer-status-granted-to-international-solar-alliance/article37927868.ece
https://isolaralliance.org/uploads/docs/ac27a2d6afe723888d05d32e4d4b0b.pdf#:~:text=The%20ISA's%20Global%20Solar%20Facility%20(GSF)%20aims,solutions%2C%20rooftop%20solar%2C%20and%20productive%20use%20solar.
https://www.indiabudget.gov.in/doc/eb/vol1.pdf
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.49) Which of the following is **not** one of the PANCHAMRITA promises, outlined by India at COP-26 of United Nations Framework Convention on Climate Change (UNFCCC)?

a) To take non-fossil energy capacity of India to 500 GW by 2030.
b) To meet 50% of India's energy requirement from renewable sources by 2030.
c) To reduce carbon intensity below 45 percent by 2030.
d) Achieving the target of net zero emissions by 2050.

Ans) d

Exp) Option d is the correct answer.

During 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, United Kingdom in 2021, India presented the five nectar elements (Panchamrita) of India's climate action.

Option a is correct: India has set an enhanced target at the COP26 of 500 GW of non-fossil fuel-based energy by 2030, as a key pledge under the Panchamrita. This is the world's largest expansion plan in renewable energy.

Option b is correct: India under 'Panchamrita' pledged to achieve 50% non-fossil installed capacity by the year 2030.

India's installed non-fossil fuel capacity has increased 396% in the last 8.5 years and stands at more than 179.57 GW (including large Hydro and nuclear), about 42% of the country's total capacity (as of November 2023).

Option c is correct: India under 'Panchamrita' set a target of reducing our Economy's carbon intensity by 45 per cent by 2030, compared to the 2005 level.

Before, India reduced its economy's carbon intensity by 33% between 2005 and 2019, achieving the target 11 years in advance.

Option d is incorrect: India made a target to achieve net zero emission by 2070 . The target covers all key sectors of the economy.

Knowledge Base: PANCHAMRITA is a five-fold strategy for India to play its part in helping the world get closer to 1.5 degrees Celsius.

PANCHAMRITA's promises include:

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1) India will get its non-fossil energy capacity to 500 gigawatts by 2030
2) India will meet 50 per cent of its energy requirements till 2030 with renewable energy
3) India will reduce its projected carbon emission by one billion tonnes by 2030
4) India will reduce the carbon intensity of its economy by 45 per cent by 2030
5) India will achieve net zero by 2070

Source: https://www.downtoearth.org.in/news/climate-change/cop26-modi-offers-panchamrita-concoction-for-climate-conundrum-at-glasgow-80001
https://pib.gov.in/PressReleasePage.aspx?PRID=1795071
https://www.thehindu.com/sci-tech/energy-and-environment/indias-emission-intensity-reduced-by-33-per-cent-between-2005-and-2019-govt-report/article67600774.ece
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

Q.50) With reference to the Intergovernmental Panel on Climate Change (IPCC), consider the following statements:

1. It was established jointly by the World Meteorological Society and the United Nations Environment Programme (UNEP).
2. The IPCC's primary function is to conduct scientific assessments on climate change, its impacts, and potential response options.

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

Ans) c
Exp) Option c is the correct answer.
The **Intergovernmental Panel on Climate Change (IPCC)** is a scientific body established in 1988. Its primary role is to assess and provide comprehensive scientific assessments of current scientific knowledge on climate change, its impacts, and potential adaptation and mitigation strategies.
Statement 1 is correct: The IPCC was established jointly by the World Meteorological Society (WMO) and the United Nations Environment Programme (UNEP) in 1988. This collaboration aimed to provide the international community with a neutral, scientific body to assess climate change.
Statement 2 is correct: Conducting scientific assessments on climate change, its impacts, and potential response options is the core function of the IPCC. They achieve this through regular reports prepared by thousands of scientists worldwide, summarizing the latest knowledge and offering evidence-based insights.
Source: https://unfoundation.org/blog/post/intergovernmental-panel-climate-change-30-years-informing-global-climate-action/?gclid=CjwKCAjwrpOiBhBVEiwA_473dG0BL8GC48ZZ8RtwAEdxmOfO7up0-wyEvE4_aGzc8e9fFTOIseBubxoCvMcQAvD_BwE
https://www.ipcc.ch/about/structure/
https://www.ipcc-nggip.iges.or.jp/
Subject:) Environment
Subtopic:) Climate Change Initiatives, conventions and organization

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