



PRELIMS QUESTIONS

Q1. Consider the following statements regarding Adaptation Gap Report 2020?

1. The report is published by UNEP with support from UNFCCC.
2. The report mainly focuses on the gender gap, Knowledge gap and technology.
3. The report has a special focus on Nature-based solutions.

Which of the above statements is/are correct?

- | | |
|------------|------------------|
| (a) 1 only | (b) 1 and 2 only |
| (c) 3 only | (d) 2 and 3 only |

Answer: (C)

Explanation:

Statement 1: The report is published by **UNEP only**. Countries commitment to the UNFCCC target is one of the key features of the report.

Statement 2: The report mainly focuses on the **Finance**, Knowledge gap and technology. It has no role to play with the gender gap.

Statement 3: The report has a special focus on Nature-based solutions. So statement 3 only is correct.

Q2. Consider the following statements regarding Nature-based solutions?

1. Nature-based Solutions are **actions to protect, sustainably manage and restore natural or modified ecosystems** that address societal challenges effectively.
2. The ecosystem protection approach of NBS is based on the zonal conservation approach.
3. NBS is mainly used to address coastal hazards, intense precipitation, heat and drought.
4. NBS can be implemented only in an integrated manner.

Which of the above statements is/are correct?

- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 3 and 4 only | (d) 1 and 3 only |

Answer: (D)

Explanation:

Statement 1: Nature-based Solutions are **actions to protect, sustainably manage and restore natural or modified ecosystems** that address societal challenges effectively. So statement 1 is correct.

Statement 2: The ecosystem protection approach of NBS is based on the **Area-based conservation approach**. So statement 2 is incorrect.



Statement 3: NBS is mainly used to address coastal hazards, intense precipitation, heat and drought. So statement 3 is correct.

Statement 4: NBS can be implemented both alone as well as in an integrated manner. So statement 4 is incorrect.

Q3. Consider the following statements regarding Natural capital accounting and valuation of the Ecosystem services?

1. NCAVES has been organised in collaboration with the Ministry of Environment and Climate change, EU, UN Environment and UN statistic department.
2. Key participating partner countries of this project are Brazil, India, China, Mexico and Russia.
3. National Capital Accounting is a tool that can help **measure the full extent of a country's natural capital.**

Which of the above statements is/are correct?

- | | |
|------------------|------------|
| (a) 1 only | (b) 2 only |
| (c) 2 and 3 only | (d) 3 only |

Answer: (D)

Explanation:

Statement 1: NCAVES has been organised in collaboration with the **Ministry of Statistic and Program Implementation**, EU, UN Environment and UN statistic department. And not by the Ministry Environment, **So statement 1 is incorrect.**

Statement 2: there are 5 key participating partner countries in this project they are as follow Brazil, India, China, **South Africa** and Mexico. **So statement 2 is incorrect.**

Statement 3: National Capital Accounting is a tool that can help **measure the full extent of a country's natural capital.** **So statement 3 is correct.**

Q4. Consider the following list of E-waste hazardous to the environment?

- | | | |
|--------------------|-------------|------------|
| 1. Liquid Crystals | 2. Lithium | 3. Mercury |
| 4. Oxygen | 5. Selenium | 6. Lead |
| 7. Arsenic | | |

Which of the above statements is/are correct?

- | | |
|----------------------------|-------------------------|
| (a) 1, 2, 3, 4, 5, 6 and 7 | (b) 1, 2, 4, 5, 6 and 7 |
| (c) 1, 2, 3, 5, 6 and 7 | (d) 1, 2, 3, 4, 6 and 7 |



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Answer: (C)

Explanation:

All the above-listed chemicals are hazardous to the environment except oxygen, followed by Nickel, Polychlorinated Biphenyl, Cadmium Etc.

Q5. During winter the vehicles with closed doors and windows remain warmer than the temperature outside. This may be due to

- (a) Greenhouse effect
- (b) Heat Conduction by the metallic frame of the vehicle
- (c) Ionizing radiation effect
- (d) High pollution outside the vehicle

Answer: (A)

Explanation

Justification: Option C: Ionizing radiation is radiation that carries enough energy to free electrons from atoms or molecules, thereby ionizing them. It is not relevant here; hence (c) is also wrong. **Option D:** High pollution outside may keep vehicle surroundings warm rather than the opposite. So, (d) is also wrong.

Learning: A greenhouse is made up of glass. The glass which is transparent to incoming short wave solar radiation is opaque to outgoing longwave radiation. The glass, therefore, allows in more radiation and prevents the longwave radiation from going outside the glasshouse, causing the temperature inside the glasshouse structure warmer than outside. When you enter a car or a bus, during summers, where windows are closed, you feel more heat than outside. Likewise, during winter the vehicles with closed doors and windows remain warmer than the temperature outside.

Q6. Oil extraction in the Arctic may lead to the release of

- 1) Black carbon
- 2) Methane
- 3) Carbon Monoxide

Select the correct answer using the codes below.

- (a) 1 and 3 only
- (b) 2 only
- (c) 1 and 2 only
- (d) 1 only

Answer: (C)



Explanation:

This is a lateral explanation. Oil extraction in the Arctic may release black carbon and methane leading to global warming and thawing of Arctic ice. It subsequently causes climate change. Some studies estimate the cost involved as \$60 trillion to the world economy. Apart from the usual emission issues from the Arctic Permafrost, many of the boundary lines in the Arctic remain to be fully demarcated as under EEZ. Therefore, disputes can arise in resource extraction in the Arctic. The short growing season and the low diversity of living organisms make the Arctic ecosystem vulnerable to global warming, climate change, exploratory activities etc.

Q7. Melting permafrost would

1. Increase the carbon content in the atmosphere
2. Raise sea levels
3. Reduce soil erosion at higher latitudes

Select the correct answer using the codes below.

- (a) 1 and 2 only (b) 2 and 3 only
(c) 2 only (d) 1 and 3 only

Answer: (A)

Explanation:

Permafrost is ground, including rock or soil, at or below the freezing point of water for two or more years. Most permafrost is located in high latitudes. It also occurs subsea on the continental shelves of the continents surrounding the Arctic Ocean, portions of which were exposed during the last glacial period, with global weather implications. Permafrost can also store carbon, both as peat and as methane. The amount of carbon sequestered in permafrost is roughly four times the carbon that has been released into the atmosphere due to human activities in modern time. Melting permafrost would raise water levels in the Earth's oceans and increase erosion. Erosion happens when permafrost melts because the soil and sediment are easily washed away without the ice-binding them together.

Q8. Consider the following statements.

1. A certified emission reduction (CER) is generated from a clean development mechanism (CDM) project activity.
2. CERs can be purchased only from the country that generated the emissions reduction potential.



Which of the above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) None

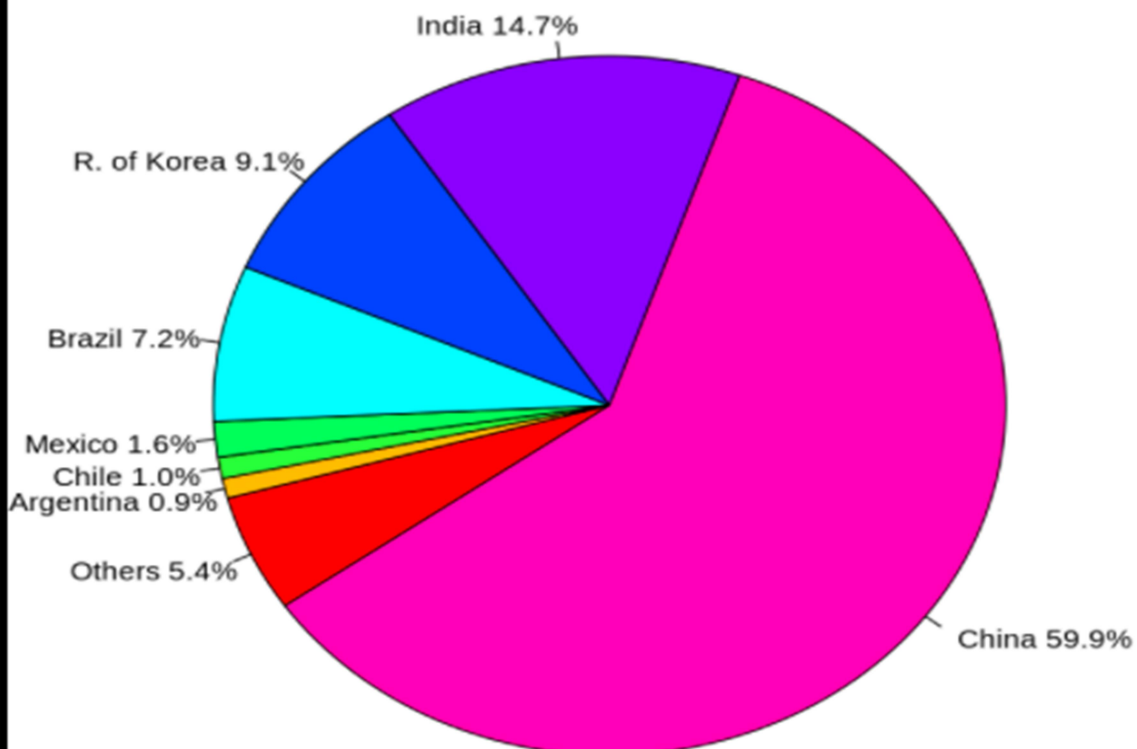
Answer: (A)

Explanation:

Statement 1: The Clean Development Mechanism (CDM), defined in Article 12 of the Protocol, allows a country with an emission reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. 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. A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers.

Statement 2: CERs can be purchased from the primary market (purchased from an original party that makes the reduction) or secondary market (resold from a marketplace). At present, most of the approved CERs are recorded in CDM Registry accounts only. It is only when the CER is sitting in an operator's trading account that its value can be monetized through being traded. The UNFCCC's International Transaction Log has already validated and transferred CERs into the accounts of some national climate registries

Certified emission reduction units by country



Data: <http://cdm.unfccc.int/Statistics/Issuance/CERsIssuedByHostPartyPieChart.html>



Q9. Halting deforestation and increasing green cover is a cost-effective action that has a clear impact on reducing global GHG emissions. Why?

1. When forests are cleared or degraded, they can become a source of GHG emissions by releasing the stored carbon in biomass or soil.
2. Farms such as rice fields soak atmospheric methane and reduce the overall stock of CO₂ in the atmosphere.

Which of the above is/are correct?

- | | |
|------------------|------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) None |

Answer: (A)

Explanation

Statement 1: Forests play a fundamental role they play in climate change mitigation, by removing CO₂ from the atmosphere and storing it in biomass and soils. This also means that when forests are cleared or degraded, they can become a source of greenhouse gas (GHG) emissions by releasing that stored carbon. It is estimated that globally, deforestation and forest degradation account for around 11 per cent of CO₂ emissions. Halting deforestation is a cost-effective action that has a clear impact on reducing global GHG emissions. FAO's support also helps countries during the later implementation phase of REDD.

Statement 2: Rice fields emit methane, and more rice farms lead to an increase in the methane GHG emissions, even if they soak some of the CO₂.

Q10. Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production of numerous Ozone Depleting Substances (ODSs) that are responsible for ozone depletion. Under it, apart from CFCs, production and consumption of which of these key ODSs are banned?

- | | |
|----------------------|---------------|
| 1. Methyl Chloroform | 2. CTC halons |
| 3. Methyl Bromide | |

Select the correct answer using the codes below.

- | | |
|------------------|------------------|
| (a) 1 only | (b) 2 and 3 only |
| (c) 1 and 2 only | (d) 1, 2 and 3 |

Answer: (D)

Explanation: Due to its universality, the Montreal Protocol has helped in recovering the ozone hole in Antarctica. All the ODSs mentioned above have been phased-out globally. Vienna Convention for



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Protection of the Ozone Layer acts as a framework for the international efforts to protect the ozone layer. These are laid out in the accompanying Montreal Protocol. However, it does not include legally binding reduction goals for the use of CFCs, the main chemical agents causing ozone depletion.

MAINS QUESTION

- Q1. As regards the increasing rates of melting of Arctic Sea ice, the significant impact of climate change can be seen. Explain. **(10 Marks, 150 Words)**
- Q2. Climate change is not anymore only an environmental problem, but a unique one with multi-dimensional characteristic, from the global to the local. Comment, also discuss challenges in tackling the problem of climate change across the world.

(15 Marks, 250 Words)