Q. 1) Consider the following statements regarding the Direct Seeding of Rice (DRS)

1. In this method, farmers prepare nurseries where the paddy seeds are first sown**.**
2. This technique can help save 15% to 20% of water compared to traditional methods.
3. It requires spraying of herbicides simultaneously along with sowing, and the first irrigation.

Choose the correct code:

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

Q.1) Solution: (c)

Explanation:

- In the **Direct Seeding of Rice (**DSR), the pre-germinated seeds are directly drilled into the field by a tractor-powered machine.
- There **is no nursery preparation or transplantation involved** in this method.
- In this method, farmers have to only level their land and give one pre-sowing irrigation. **Hence statement 1 is incorrect.**
- With DSR, 15-18 irrigation rounds are required against 25 to 27 irrigation rounds in traditional methods.
- DSR can save 810 to 1,080 billion litres of water every year if the entire rice crop is brought under the technique.
- This technique can help **save 15% to 20% of water compared to traditional methods. Hence statement 2 is correct.**
- DSR can **solve labour shortage problems** because, like the traditional method, it does not require a paddy nursery and transplantation of a 30-day-old paddy nursery into the main puddled field.
- The field should be laser levelled and the spraying of herbicides must be done simultaneously with sowing, and the first irrigation. **Hence statement 3 is correct.**

Q. 2) Consider the following statements about the oil spill

1. It refers to any uncontrolled release of crude oil and gasoline into the environment.
2. It can be caused only by an anthropological cause and not by natural causes.
3. It causes hypothermia in birds as crude oil ruins the insulating and waterproofing properties of feathers and fur.

Choose the correct code:

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

Q.2) Solution: (c)

Explanation:

- An oil spill refers to any uncontrolled release of crude oil, gasoline, fuels, or other oil by-products into the environment.
- Oil spills can pollute land, air, or water, though it is mostly used for oceanic oil spills. **Hence statement 1 is correct.**
- It can be caused as a result of intensified petroleum exploration and production on continental shelves and the transport of large amounts of oils in vessels.
- Oil spills that happen in rivers, bays and the ocean most often are caused by accidents involving tankers, barges, pipelines, refineries, drilling rigs, and storage facilities, but also occur from recreational boats and natural disasters.
- Natural disasters like very heavy storms in the oceans, shaking of the sea floor due to earthquakes, and hurricanes have contributed to oil tanker ship accidents or breakage/leakage of underground pipelines thereby causing colossal oil spills.
- Hence it can be caused by both anthropological causes and natural causes. **Hence statement 2 is incorrect.**
- It causes **hypothermia in birds and threats to the aquatic ecosystem.**
- Crude oil ruins the insulating and waterproofing properties of feathers and fur of birds, and thus oil-coated birds and marine mammals may die from hypothermia.
- Hypothermia is a decrease in body temperature to below-normal levels.
- Oil on ocean surfaces is harmful to many forms of aquatic life because it prevents sufficient amounts of sunlight from penetrating the surface, and it also reduces the level of dissolved oxygen. **Hence statement 3 is correct.**

Q. 3) Consider the following statements about the Coastal Vulnerability Index

1. It was carried out by the Ministry of Environment, Forest, and Climate Change.
2. It is assessed parameters such as like tidal range, coastal slope, geomorphology, and wave height.

Choose the correct code:

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

Q.3) Solution: (b)

Explanation:

- Coastal vulnerability identifies people and places that are susceptible to disturbances resulting from coastal hazards.
- The Coastal Vulnerability Index has been prepared based on the coastal vulnerability assessment conducted by the **Indian National Centre for Ocean Information Services (INCOIS).**

- INCOIS is an autonomous organisation under the Ministry of Earth Sciences (MoES).
- It is located in Hyderabad & was established in 1999. It is a unit of the Earth System Science Organisation (ESSO), New Delhi.
- The ESSO operates as an executive arm of the Ministry of Earth Sciences (MoES) for its policies and programmes. **Hence statement 1 is incorrect.**
- It is assessed on parameters such as
  - ✓ **Tidal range**
  - ✓ **Wave height**
  - ✓ **Coastal slope**
  - ✓ Coastal elevation
  - ✓ Shoreline change rate
  - ✓ **Geomorphology**
  - ✓ The historical rate of relative sea-level change. **Hence statement 2 is correct.**

Q. 4) Consider the following statements about the Landslide Atlas of India

1. It is based on data of landslides from year 1800-2021.
2. It has assessed all the states and union territories of India.
3. The Indian state of Mizoram topped the list with the highest recorded landslides.

Choose the correct code:

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

Q.4) Solution: (d)

Explanation:

- A landslide is defined as the movement of a mass of rock, debris, or earth down a slope.
- They are a type of mass wasting, which denotes any downward movement of soil and rock under the direct influence of gravity. They generally occur in clay-rich soil.
- The **Landslide Atlas of India is** a detailed guide **identifying landslide hotspots in the country and was released under the Indian Space Research Organisation (ISRO)**.
- It used satellite data from ISRO to map all seasonal and event-based landslides like the Kedarnath disaster in 2013 and landslides triggered due to the Sikkim earthquake in 2011.
- The pan-India landslide database classifies landslides into – seasonal (2014, and 2017 monsoon seasons), event-based and route-based (2000 – 2017).
- It was released for the first time in 2023 by assessing the risk based on 80,000 landslides recorded between 1998 and 2022. **Hence statement 1 is incorrect.**
- It has assessed 147 districts in 17 states and two Union Territories to build the Landslide Atlas of the country. **Hence statement 2 is incorrect.**

- Mizoram topped the list, recording 12,385 landslide events in the past 25 years, of which 8,926 were recorded in 2017 alone.
- Mizoram is followed by Uttarakhand (11,219) and Kerala. **Hence statement 3 is correct.**

Q. 5) Consider the following statements about the Loss and Damage Funding of COP27 of the UNFCCC

1. Loss and Damage refer to impacts of climate change that can be avoided either by mitigation or adaptation.
2. It includes compensation for the destruction of biodiversity and sites that have cultural importance.

Choose the correct code:

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

Q.5) Solution: (b)

Explanation:

- The Conference of Parties (COP) is the apex decision-making body of the United Nations Climate Change Framework Convention (UNFCCC).
- The Loss and Damage Funding of COP27 of the UNFCCC **refers to impacts of climate change that cannot be avoided either by mitigation or adaptation.**
- It will compensate the most vulnerable countries for their losses due to climate-related disasters.
- Mitigation refers to efforts to reduce or prevent the emission of greenhouse gases.
- Adaptation means taking action to prepare for and adjust to both the current effects of climate change and the predicted impacts in the future.
- **The countries like Canada, Denmark, Germany, New Zealand, Scotland and the Belgian province** of Wallonia have expressed interest in it. **Hence statement 1 is incorrect.**
- They also include not only economic damage to property but also loss of livelihoods, and the destruction of biodiversity and sites that have cultural importance. This broadens the scope for affected nations to claim compensation. **Hence statement 2 is correct.**

Q. 6) Consider the following statements about the Global Offshore Wind Alliance (GOWA)

1. It was set up by India, International Renewable Energy Agency (IRENA) **and the** Global Wind Energy Council.
2. Offshore wind energy refers to the deployment of wind farms inside the water bodies.
3. The alliance has Belgium, Colombia, and Germany as its members.

Choose the correct code:

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

Q.6) Solution: (b)

Explanation:

- The Global Offshore Wind Alliance (GOWA) was set up by the **International Renewable Energy Agency (IRENA),** Denmark, and the **Global Wind Energy Council.**
- IRENA) is an intergovernmental organisation, it was officially founded in Bonn, Germany, in January 2009.
- It has 167 members and India is the 77th Founding Member of IRENA.
- It has its headquarters in Abu Dhabi, United Arab Emirates.
- GWEC was established in 2005 to provide a credible and representative forum for the entire wind energy sector at an international level. **Hence statement 1 is incorrect.**
- Wind energy today typically comes in two different types: onshore wind farms which are large installations of wind turbines located on land, and offshore wind farms which are installations located in bodies of water.
- **Offshore wind energy refers to the deployment of wind farms** inside the water bodies. They utilise the sea winds to generate electricity. These wind farms either use fixed-foundation turbines or floating wind turbines. **Hence statement 2 is correct.**
- The alliance has Australia, Belgium, Colombia, Denmark, Germany, Ireland, Japan, the Netherlands, Norway, Portugal, Spain, Saint Lucia, the United Kingdom, and the United States of America as its members. **Hence statement 3 is correct.**

Q. 7) Consider the following statements about the Sendai Framework for Disaster Risk Reduction

1. It aims to strengthen social and economic resilience to ease the adverse effects of climate change.
2. It is a successor agreement to the Hyogo Framework for Action.
3. The Sendai Framework Monitor is an online tool that aims to collect data on achieving the targets of the framework.

Choose the correct code:

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

Q.7) Solution: (d)

Explanation:

- The Sendai Framework for Disaster Risk Reduction 2015-2030 is an international agreement that aims to prevent disaster risks across the globe.
- It aims to strengthen social and economic resilience to ease the adverse effects of climate change, manmade disasters and natural hazards.
- It was adopted by UN member states between 14 and 18th March 2015 at the World Conference on Disaster Risk Reduction, which was held in Sendai, Japan. **Hence statement 1 is correct.**
- The Hyogo Framework for Action (HFA) was a 10-year plan (2005-2015) to make the world safer from natural hazards. Priorities such as disaster risk reduction, identification, assessment through legal and policy frameworks, disaster preparedness and use of innovation were adopted.
- The Sendai Framework for Disaster Risk Reduction 2015-2030, is the successor instrument to the Hyogo Framework.
- It is a non-binding agreement, which the signatory nations, including India, will attempt to comply with voluntarily. **Hence statement 2 is correct.**
- The Sendai Framework Monitor is an online tool that aims to collect data on achieving the targets of the framework.
- It was launched by the UN Office for Disaster Risk Reduction (UNISDR). **Hence statement 3 is correct.**

Q. 8) Consider the following statements about the National Disaster Management Authority (NDMA)

1. It is the apex constitutional body for disaster management in India.
2. It has Prime Minister as its chairman.
3. It lays down guidelines to be followed by State Authorities in drawing up State Plans.

Choose the correct code:

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

Q.8) Solution: (b)

Explanation:

- The National Disaster Management Authority (NDMA) is the apex **statutory body** for disaster management in India. It is in accordance with the Disaster Management Act of 2005.
- Its primary purpose is to coordinate response to natural or man-made disasters and for capacity-building in disaster resiliency and crisis response. It is also the apex body to lay

down policies, plans and guidelines for Disaster Management to ensure a timely and effective response to disasters.

- It is not a constitutional body as it is not mentioned in the Constitution of India. **Hence statement 1 is incorrect.**
- It has Prime Minister as its chairman and nine other members, and one such member to be designated as Vice-Chairperson. **Hence statement 2 is correct.**
- Functions and Responsibilities of NDMA -
  - ✓ Approve the National Disaster Plan
  - ✓ Lay down policies on disaster management
  - ✓ Approve plans prepared by Ministries or Departments of the Central Government in accordance with the National Plan
  - ✓ Lay down guidelines to be followed by State Authorities in drawing up State Plan
  - ✓ Lay down guidelines to be followed by different Ministries or Departments of Central Government for purpose of integrating measures for disaster prevention or mitigation of its effects in their development plans and projects
  - ✓ Coordinate enforcement and implementation of disaster management policy and plan
  - ✓ Recommend provision of funds for the purpose of mitigation
  - ✓ Provide such support to other countries affected by major disasters as determined by Central Government
  - ✓ Take such other measures for prevention of disasters or mitigation or preparedness and capacity building for dealing with threatening disaster situations or disaster as it may consider necessary
  - ✓ Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management

  Hence statement 3 is correct.

Q. 9) Consider the following statements about lightning

1. It is an electrical discharge of very little duration and high voltage between a cloud and the ground.
2. Cloud-to-ground (CG) lightning is dangerous as it can electrocute people.
3. It is a natural disaster covered under the State Disaster Response Fund (SDRF).

Choose the correct code:

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

Q.9) Solution: (a)

Explanation:

- Lightning is the natural process of **an electrical discharge of very little duration and high voltage** between a cloud and the ground or within a cloud, accompanied by a bright flash, a loud sound, and occasional thunderstorms.
- It is caused by a difference in electrical charge between the top and bottom of a cloud, which generates a huge current of electricity.
- Water vapor in the cloud condenses and rises, generating heat and pushing water molecules further up until they become ice crystals. Collisions between the ice crystals trigger the release of electrons, leading to a chain reaction that results in a positively charged top layer and a negatively charged middle layer in the cloud.

  When the difference in charge becomes large enough, a huge current of electricity flows between the layers, producing heat that causes the air column to expand and produce shock waves that create thunder sounds. **Hence statement 1 is correct.**

  Cloud-to-ground (CG) lightning is dangerous because it can electrocute people due to its high electric voltage and current. Inter- or intra-cloud lightning is visible and safe. **Hence statement 2 is correct.**
- Currently, cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms,

  landslides, avalanches, cloudbursts, pest attacks, frost, and cold waves are considered disasters that are covered under the State Disaster Response Fund (SDRF), 75% of which is funded by the Centre.
- Lightening is not a natural disaster covered under the **State Disaster Response Fund (SDRF). But states are demanding it. Hence statement 3 is incorrect.**

Q. 10) Consider the following statements about the Gross Domestic Climate Risk Report

1. It was published by the United Nations Environment Programme.
2. China has the highest number of provinces in the climate-risk-prone territories of the world.
3. Bihar is set to be the most climate-vulnerable region in India by 2050.

Choose the correct code:

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

Q.10) Solution: (b)

Explanation:

- **The Gross Domestic Climate Risk Report** was published by **Australia-based Cross Dependency Initiative or XDI.**
- XDI is a part of the **Climate Risk Group of companies** quantifying the costs of climate change.
- The report ranks over 2,600 jurisdictions around the world in 2050 according to modelled projections of **damage to the built environment** from **extreme weather and climate change** including flooding, forest fires, and sea level rise.
- **Built environment refers to** aspects of the surroundings that are built by humans to support human activity like homes and workplaces. **Hence statement 1 is incorrect.**
- China has the highest number of provinces in the top 50 most climate-risk-prone territories of the world, followed by the United States.
- Over half of the provinces in the global top 50 are in China. After China, the US has the most high-risk states with 18 states in the top 100. **Hence statement 2 is correct.**
- According to the report, 14 Indian states are set to remain within the top 100 most climate-risk-prone territories of the world by 2050.
- Bihar is set to be the most climate-vulnerable region in India by 2050 with a global rank of 22nd, according to the report.
- It is followed by Uttar Pradesh and Assam with 25th and 28th ranks respectively. **Hence statement 3 is correct.**

Q. 11) Consider the following statements about the seismic zones classification of India

1. Zone II includes areas that are the most seismically active zone.
2. Zone V includes areas that are prone to earthquakes of low intensity.

Choose the correct code:

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

Q.11) Solution: (d)

Explanation:

- A seismic zone is an area where there is a high probability of earthquakes due to the area's geology.
- Seismic zonation involves dividing areas based on expected ground motion.
- It assesses the hazards related to earthquakes in such areas to provide inputs for safer constructions and other practices.
- According to the latest version of India's seismic zone map (2002), earthquake-prone regions in the country are divided into four zones (II, III, IV, and V) based on intensity levels during past earthquakes.

- Zone II, which was made by combining areas under zone I and II, indicate areas prone to earthquakes of low-intensity. **Hence statement 1 is incorrect.**
- Zone III includes areas that are prone to earthquakes of moderate intensity.
- Zone IV includes areas prone to earthquakes of severe intensity, and include Patna, Pilibhit, Ludhiana, Roorkee, Gorakhpur, and Amritsar.
- Zone V is the most seismically active zone. This includes
  - ✓ the entire northeast India,
  - ✓ parts of northwestern Bihar,
  - ✓ Kangra Valley in Himachal Pradesh,
  - ✓ Andaman and Nicobar Islands,
  - ✓ the eastern part of Uttarakhand,
  - ✓ Rann of Kutch in Gujarat, and
  - ✓ Srinagar area in Jammu and Kashmir

Hence statement 2 is incorrect.

Q. 12) Consider the following statements about sedimentation in dams

1. It refers to the accumulation of sand, gravel, and silt, at the bottom of a reservoir created by a dam.
2. Some of the causes include climate change, deforestation, and erosion of upstream areas of dams.
3. It can cause a loss of hydroelectric power generation.

Choose the correct code:

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

Q.12) Solution: (d)

Explanation:

- Sedimentation in dams refers to the accumulation of sand, gravel, and silt, at the bottom of a reservoir created by a dam.
- This sediment can build up over time, reducing the overall storage capacity of the reservoir.
- To maintain the capacity of the reservoir, the sediment may need to be removed through a process called dredging.
- Dredging is the process of removing sediments, such as sand, gravel, and silt, that have accumulated at the bottom of a reservoir.
- It can be done using various methods, such as mechanical dredging with a dredging machine or hydraulic dredging with a high-pressure water jet. **Hence statement 1 is correct.**

- Some of the causes include climate change, deforestation, and erosion of upstream areas of dams.
- **Climate change** causes more intense and frequent rainfall events and also causes **snowmelt** earlier which can lead to increased erosion and sediment runoff into the reservoir.
- Trees help to hold the soil together and prevent **erosion,** so when forests are removed or degraded, there is a greater risk of sediment runoff into the reservoir.
- When soil and rock are washed away from the area upstream of the dam, they can be carried downstream and deposited in the reservoir. **Hence statement 2 is correct.**
- It can cause a loss of **hydroelectric power generation** due to **reduced water flow** through the dam. **Hence statement 3 is correct.**

Q. 13) Consider the following statements about Cirrus cloud thinning (CCT)

1. It is a kind of technology that involves thinning the wispy, elongated cirrus clouds.
2. Cirrus clouds reflect more sunlight than they absorb
3. This technique can help in reducing the effects of global warming.

Choose the correct code:

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

Q.13) Solution: (c)

Explanation:

- Cirrus cloud thinning (CCT) is a kind of technology that involves thinning the wispy, elongated cirrus clouds.
- It aims to eliminate or thin cirrus clouds to allow heat to escape into space. The wispy, elongated cirrus clouds are found at high altitudes and often absorb more sunlight than they reflect because they form in cold temperatures and consist of ice crystals. If these ice crystals are numerous and small, cirrus clouds prevent long-wave terrestrial radiation from escaping into space and have a climate impact similar to greenhouse gases. **Hence statement 1 is correct.**
- The wispy,elongated "cirrus" clouds are found ound at high altitudes, and often absorb more sunlight than they reflect, because they form in cold temperatures and consist of ice crystals. If these ice crystals are numerous and small, cirrus clouds prevent long-wave terrestrial radiation from escaping into space, and have a climate impact similar to greenhouse gases. **Hence statement 2 is incorrect.**
- It involves injecting ice nuclei – such as bismuth triiodide or aerosol particles such as sulfuric or nitric acid – into regions where cirrus clouds form. This would produce cirrus clouds with larger ice crystals with shorter life spans, while also reducing their optical

depth, which means more long-wave terrestrial radiation would be transmitted into space.

- Thinning the clouds could allow more heat to escape into space. This helps in reducing the effects of global warming. **Hence statement 3 is correct.**

Q. 14) Consider the following statements about Styrene

1. It is a sweet-smelling organic liquid that evaporates easily.
2. It is used as the precursor of polystyrene, latex, and rubbers.
3. It is a non-carcinogenic compound.

Choose the correct code:

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

Q.14) Solution: (a)

Explanation:

Context: The Vizag gas leak in Andhra Pradesh resulted in the death of several people and the hospitalization of hundreds more. Many animals including birds and livestock were lost due to the incident. It occurred at the polymer plant- owned by the South Korean LG group.

The gas that leaked was identified to be styrene. At the time of the leak, 1,800 tonnes of the compound was stored at the plant.

- Styrene is a sweet-smelling organic liquid that evaporates easily. **Hence statement 1 is correct.**
- It is used as the precursor of polystyrene, latex, and rubbers.
- It is also found in cigarette smoke, vehicle exhaust, and even in fruits and vegetables. **Hence statement 2 is correct.**
- It is a carcinogenic compound.
- Even short-term exposure causes irritation of the skin and eyes, gastrointestinal problems, etc. Long-term exposure affects the central nervous system- leading to issues like peripheral neuropathy and even coma.
- Symptoms of exposure include difficulty in concentrating, loss of hearing, headache, weakness, etc. **Hence statement 3 is incorrect.**

Q. 15) Consider the following statements about the Carbon Border Adjustment Mechanism (CBAM)

1. It is a duty on imports based on the amount of carbon emissions resulting from the production of that product.
2. It has been proposed by the European Union.

Choose the correct code:

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

Q.15) Solution: (c)

Explanation:

- The Carbon Border Adjustment Mechanism (CBAM) is a duty on imports based on the amount of carbon emissions resulting from the production of that product.
- As a price on carbon, it discourages emissions. As a trade-related measure, it affects production and exports.
- It aims to tax products such as cement and steel that are extremely carbon intensive, with effect from 2026. **Hence statement 1 is correct.**
- It has been proposed by the European Union. Its members are Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden. **Hence statement 2 is correct.**

Q. 16) Consider the following statements about Dvorak Technique

1. It is a cloud pattern recognition technique (CPRT).
2. It is based on the development and decay of the temperate cyclone.

Choose the correct code:

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

Q.16) Solution: (a)

Explanation:

- **Dvorak Technique** is a **cloud pattern recognition technique (CPRT)**.
- It was first developed in 1969 and tested for observing storms in the northwest Pacific Ocean. **Hence statement 1 is correct.**
- In this methodology, available satellite images obtained from polar-orbiting satellites are used to examine the features of developing tropical storms like hurricanes, cyclones, and typhoons.
- During day time, images in the visible spectrum are used while at night, the ocean is observed using infrared images.
- From the satellite images, the technique helps forecasters do a pattern recognition from the observed structure of the storm, locate its eye and estimate the intensity of the storm.
- It is based on the **development and decay** of the **tropical cyclone. Hence statement 2 is incorrect.**

Q. 17) Consider the following statements about the Coalition for Disaster Resilient Infrastructure (CDRI)

1. It aims to **increase the resilience of infrastructure systems to climate and disaster risks.**
2. It is a global partnership of national governments, **United Nations** agencies, and the private sector.
3. It was launched in COP26 of the UNFCCC by India.

Choose the correct code:

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

Q.17) Solution: (a)

Explanation:

- The Coalition for Disaster Resilient Infrastructure (CDRI) aims to increase the resilience of infrastructure systems to climate and disaster risks, thereby ensuring sustainable development.
- It will support countries- developed and developing- to build climate and disaster-resilient infrastructure.
- The Coalition's secretariat, based in Delhi, will facilitate knowledge exchange, provide technical support, and support capacity building. **Hence statement 1 is correct.**
- CDRI is a global partnership of national governments, United Nations agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and academic and research institutions. **Hence statement 2 is correct.**
- It was launched in 2019, at the United Nations Climate Action Summit in New York by India.

- It is the Government of India's second major global initiative after the International Solar Alliance, and it demonstrates India's leadership in climate change and disaster resilience issues.
- The United Nations Climate Action Summit was hosted by the UN Secretary.
- It had the key focus on raising ambition and accelerating action to implement the **Paris Agreement. Hence statement 3 is incorrect.**

Q. 18) Consider the following pairs:

Low Pressure Systems	Classification as per Regional Name
1. Asani	Typhoon
2. Noru	Cyclone
3. Aidan	Hurricane
4. Goni	Typhoon

How many pairs are correctly matched?

a) One pair
b) Two pairs
c) Three pairs
d) Four pairs

Q.18) Solution: (b)

Explanation:

- Tropical storms are called hurricanes when they develop over the North Atlantic, central North Pacific, and eastern North Pacific.
- These rotating storms are known as cyclones when they form over the South Pacific and Indian Ocean
- These are called typhoons when they develop in the Northwest Pacific.

Name	Type of tropical storm
1. Asani	Cyclone
2. Noru	Typhoon

3. Aidan	Hurricane
4. Goni	Typhoon

Hence option b is correct.

Q. 19) Consider the following statements about the State Energy and Climate Index (SECI)

1. It was launched by the Ministry of Environment, Forest and Climate Change (MoEFCC).
2. It is the first index that aims to track the efforts made by states and UTs **in the** climate and energy sector.
3. Its parameters include clean energy initiatives, energy efficiency, and environmental sustainability.
4. Gujarat, Kerala, and Punjab are the top three performing states in the index.

Choose the correct code:

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

Q.19) Solution: (b)

Explanation:

- The **State Energy and Climate Index** (SECI) was launched by the **NITI AAYOG**. **Hence statement 1 is incorrect.**
- It is the **first index that aims to track the efforts made by states and UTs** in the **climate and energy sector.**
- **It ranks the states** based on their efforts towards improving energy access, energy consumption, energy efficiency, and safeguarding the environment. **Hence statement 2 is correct.**
- The parameters of the index have been devised keeping in mind India's goals for climate change and clean energy transition.
- The State Energy and Climate Index (SECI) ranks states and UTs on six parameters:
- Discoms' (power distribution companies) performance
- Access affordability and reliability of energy
- Clean energy initiatives
- Energy efficiency
- Environmental sustainability
- New initiatives **Hence statement 3 is correct.**
- Gujarat, Kerala, and Punjab are the top three performing states in the NITI Aayog's SECI.
- The top three performers among smaller states are Goa, Tripura, and Manipur. **Hence statement 4 is correct.**

Q. 20) Consider the following statements

1. Lantana Camara and Cestrum diurnum are examples of invasive plant species.
2. Papaya Mealy Bug and Indian Bullfrog are examples of invasive animal species.

Choose the correct code:

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

Q.20) Solution: (c)

Explanation:

- Invasive alien species are plants, animals, pathogens, and other organisms that are non-native to an ecosystem, and which may cause economic or environmental harm or adversely affect human health.
- They regenerate at an alarming speed and threaten to edge out the indigenous flora and fauna.
- Lantana Camara and Cestrum diurnum are examples of invasive plant species.
- Lantana Camara (common lantana) is a species of flowering plant within the verbena family (Verbenaceae), native to the American tropics.
- Lantanas arrived in India as a decorative shrub during the British colonial period but quickly took over several ecosystems as an invasive plant.
- The shrub can spread on the forest ground, climb over trees a creeper and entangle with other native plants with ease.
- It is a very adaptable species, which can inhabit a wide variety of ecosystems.
- Once it has been introduced into a habitat it spreads rapidly between 45ºN and 45ºS and more than 1,400 metres (4,600 feet) in altitude.
- Cestrum diurnum or day-blooming jasmine of West Indies origin; otherwise a source of vitamin D3. Once the modalities are finalised, this weed can be turned into a commercial crop for the people in the vicinity of Kaziranga. Pharmaceutical companies need tonnes of dry leaves from this plant periodically. **Hence statement 1 is correct.**
- Papaya Mealy Bug in Assam and Indian Bullfrog in Andaman and Nicobar are examples of invasive animal species. **Hence statement 2 is correct.**

Q.21) Consider the following statements about 'Methane Alert and Response System (MARS)'

1. It is an initiative of UNFCCC that will integrate data from a large number of observatories across the world that have the ability to detect methane emission events
2. MARS will alert governments, companies and operators about large methane sources to foster rapid mitigation action of this potent gas

Select the correct statement(s)

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

Q.21) Solution (b)

Explanation:

- MARS will integrate **data from a large number of existing and future satellites that have the ability to detect methane emission events** anywhere in the world, and send out notifications to the relevant stakeholders to act on it. It is a data-to-action platform set up as part of the **UNEP International Methane Emissions Observatory** (IMEO) strategy
- **MARS will alert governments, companies and operators about large methane sources to foster rapid mitigation action of this potent gas**. The data-to-action platform was set up as part of the UN Environment Programme's (UNEP) International Methane Emissions Observatory (IMEO) strategy to get policy-relevant data into the right hands for emissions mitigation.

Source: CLICK HERE

Q.22) Consider the following statements with respect to 'Earth Observation Satellite-6 (EOS-6)'

1. The Earth observing mission was placed in the geosynchronous orbit by PSLV (Polar Satellite Launch Vehicle)
2. It is expected to provide improved accuracy in daily monitoring of phytoplankton, ocean carbon uptake, harmful algal bloom alerts, and climate studies
3. The satellite will have the capability to make concurrent measurements of Ocean Colour, Sea surface and underwater temperatures and Sea Surface Winds

Choose the correct answer using the code given below

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

Q.22) Solution (b)

Explanation:

- The third generation Indian satellite for monitoring the oceans, formally named as Earth Observation Satellite-6 (EOS-6) was launched aboard the **proven launch vehicle PSLV (Polar Satellite Launch Vehicle) on its 56th flight (24th flight of the PSLV-XL version).** The Oceansat-3 was placed in the **polar orbit at the height of about 740 kilometers** above sea level.
- The OCM-3 with **high signal-to-noise ratio** is expected to **provide improved accuracy in daily monitoring of phytoplankton having wide range of operational and research applications including fishery resource management**, ocean carbon uptake, harmful algal bloom alerts, and climate studies.
- The **satellite will have the capability to make concurrent measurements of Ocean Colour, Sea Surface Temperature and Sea Surface Winds**, and is expected to provide a great boost to the ocean observing capabilities of the global scientific and operational communities in addressing the Ocean Decade objectives and challenges. **It cannot provide underwater sea temperature**

Source: CLICK HERE

Q.23) Consider the following statements with respect to 'United Nations Country Team (UNCT)'

1. The United Nations Country Team (UNCT) exists in all the member countries of the United Nations
2. The UNCT is led by the UN Resident Coordinator, who is the representative of the UN Secretary-General at UN regional groups

Q.23) Solution (d)

Explanation:

- The United Nations Country Team **(UNCT) exists in 132 countries, covering all of the 162 countries where there are United Nations programmes**.
- **The UNCT is led by the UN Resident Coordinator, who is the representative of the UN Secretary-General in a given country.** The UN Resident Coordinator (RC) is the highest-ranking representative of the UN Development System at the country level. RCs lead UN Country Teams and coordinate UN support to countries in implementing the 2030 Agenda.

Source: CLICK HERE

Q.24) Consider the following statements with respect to the Environmental DNA (eDNA)

1. It is the genetic material obtained from the fossils and dead species.
2. It originates from cellular material shed by organism into their surroundings.
3. eDNA - based molecular methods is used to detect invasive species in aquatic ecosystem.

Choose the correct answer using the code given below

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

Q.24) Solution (d)

Explanation:

- It is defined as the **genetic material obtained directly from environmental samples (Soil, sediment, water, etc.) without any obvious signs of the biological source material**. It is an efficient, non-invasive and easy-tostandardise sampling approach.
- It **originates from cellular material shed by organisms (via skin, excrement, etc.) into aquatic or terrestrial environments**.
- Coupled with sensitive, cost-efficient and ever-**advancing DNA sequencing technology, the technique is increasingly being used for biodiversity monitoring**

Source: CLICK HERE

Q.25) 'Koronivia Joint Work' seen in news is used in the context of

a) Carbon trading
b) Agriculture
c) Wetland conservation
d) Plastic usage

Q.25) Solution (b)

Explanation:

Koronivia Joint Work on Agriculture (KJWA) aims to recognise the unique potential of agriculture in tackling climate change. It was established at the 23rd Conference of the Parties (COP) in Fiji as a new process to advance discussions on agriculture in the United Nations Framework Convention on Climate Change (UNFCCC). The joint work will address six topics related to soils, nutrient use, water, livestock, methods for assessing adaptation, and the socio-economic and food security dimensions of climate change across the agricultural sectors.

Source: CLICK HERE

Q.26) Two dices are thrown simultaneously, what is the probability that sum of these scores is a perfect square or an even number.

a) 7/18
b) 10/18
c) 11/18
d) 13/18

Q.26) Solution (c)

Explanation:

Total possible outcomes when two dices are thrown = 6^2 = 36

Two dices can form any number between 2 and 12.

In this range, there are three perfect squares: 4, 9 = 2

Number of even numbers between 2 and 12 are 2, 6, 8, 10, 12= 7

Ways to form 2 = (1,1) = 1 way

Ways to form 4 = (1,3) , (2,2) , (3,1) = 3 ways

Ways to form 6 = (1,5) , (2,4) , (3,3) , (4,2) , (5,1) = 5 ways

Ways to form 8 = (2,6) , (3,5), (4,4), (5,3) , (6,2) = 5 ways

Ways to form 9 = (3,6) , (4,5) , (5,4) , (6,3) = 4 ways

Ways to form 10 = (4,6) , (5,5) , (6,4) = 3 ways

Ways to form 12 = (6,6) = 1 way

Therefore , in all there are 22 ways out of 36 total outcomes = 22/36 = 11/18.

Q.27) A pair of dices are rolled together till a sum of 5 or 7 is obtained, The probability that a 5 comes before 7 is

a) 2/5
b) 3/5
c) 4/5
d) 1

Q.27) Solution (a)

Explanation:

5 can be obtained by the following combinations = {1,4 }, {2,3}

Hence, the probability of 5 = 2 * ((1/6)*(1/6)+ (1/6)*(1/6))= 1/9

Similarly, 7 can be obtained from the following combinations = {1,6}, {2,5}, {3,4}

Hence, the probability of 7 = 2 * ((1/6)*(1/6) + (1/6)*(1/6) + (1/6)*(1/6)) = 1/6

Probability that neither sum occurs = 1 – P(7) – P(5) = 1 – 1/6 – 1/9 = 13/18

Hence, the probability that A occurs before B is

$P(a) + P(c)P(a) + P(c^2)P(a)$

$= 1/9 + (13/18)(1/9) + (13/18)^2(1/9)+ .....$

$=(1/9)/1 – 13/18 = 2/5$

Q.28) Two dice are thrown, what is the probability that both the dices are not having the same number.

a) 1/6
b) 3/5
c) 4/5
d) 5/6

Q.28) Solution (d)

Explanation:

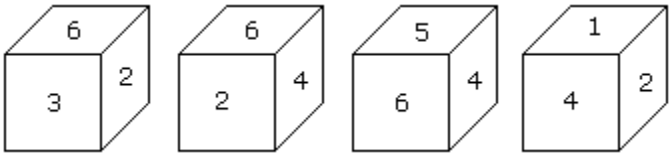
Total possible outcomes when two dices are thrown together = 36

Outcomes when both the numbers can be same = ((1,1), (2,2) , (3,3) , (4,4) , (5,5) , (6,6))= 6

Therefore, the probability of getting the same number = 6/36 = 1/6

The probability of not getting the same number = 1- 1/6 = 5/6

Q.29) Which number is on the face opposite to 6?



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

Q.29) Solution (b)

Explanation:

As the numbers 2, 3, 4 and 5 are adjacent to 6. Hence the number on the face opposite to 6 is 1.

Read the following passage and answer the items that follow. Your answer to these items should be based on the passages only

Passage

Journalism may never have been as public-spirited an enterprise as editors and writers liked to think it was. Yet the myth mattered. It pushed journalism to challenge power; it made journalists loath to bend to the whims of their audience; it provided a crucial sense of detachment. The new generation of media giants that dominates journalism today has no patience for the old ethos of detachment. It's not that these companies don't have aspirations toward journalistic greatness. Buzz Feed, Vice, and the Huffington Post invest in excellent reporting and employ first-rate journalists—and they have produced some of the most memorable pieces of investigative journalism in this century. But in the pursuit of audience, they have allowed the endless feedback loop of the web to shape their editorial sensibility and determine their editorial investments.

Q.30) Which of the following is the most logical inference that can be drawn from the passage?

a) The belief that editorial insight can be engineered with the help of audience feedback loops has eroded the very nature of journalism.
b) The ethos of detachment and social-consciousness that marked journalism earlier has been progressively eroded by the relentless pursuit of the audience by media giants.

c) By playing to the audience, media giants that have engulfed journalism today have shattered the myth of detachment and compromised editorial sensibility.
d) The steady rise in the role of media giants in journalism and their strategic pursuit of the audience has had a damaging effect on the quality of journalism and its ethos.

Q.30) Solution (c)

Explanation:

The paragraph given argues that though journalism may have never been as public-spirited as it believed itself to be, the myth of detachment mattered, as it encouraged journalistic ideals such as standing up to power and not bending to the whims of the audience. In contrast, the guiding ethos of media giants that dominate journalism today is not detachment or editorial sensibility, but the relentless pursuit of the audience.

Option c sums up the main idea of the paragraph the best.

Option a talks of 'editorial insight' being engineered with the help of audience feedback loops. The paragraph, on the other hand talks of editorial sensibility/discernment, and expresses concern that media giants, in their single-minded focus on audience, have dashed the crucial myth of detachment that shaped journalism earlier. Option a does not touch upon this.

Option b is close, but incorrect, as it refers to social-consciousness that journalism exhibited earlier. The paragraph categorically states that journalism was never as public-spirited as it imagined itself to be.

Option d talks of a drop in the quality of journalism. The paragraph actually states the contrary. It only holds that editorial sensibility has been compromised.