

**1. What are the factors that explain the presence of cold deserts in different parts of the world? Explain with the help of suitable examples.**

**Approach**

Candidates need to write about the cold desert and explain the factors that are responsible for cold desert formation with suitable example.

**Introduction**

Cold deserts are arid ecosystems which receive rainfall less than 25cm in a year. They are located in the interior of the continent and at high latitude, characterized by the temperate climatic condition – hot summer and chilled winter.

**Body**

Factors explaining the presence of cold deserts:

- Cold deserts are formed in temperate regions, at higher altitudes and are located at the centre of the continent. For example Arctic, the Antarctic and Greenland including the areas above the tree lines of mountain ranges.
- They have hot summer and extremely chilled winter (temperature may reach up to -40C).
- Precipitation occurs in the form of snow, the humidity remains low throughout the year. Examples- Atacama Desert(Peru), Gobi Desert etc.
- Because of the low temperatures, pressure, moisture, distance from sea, and poor vegetation; precipitation is very low in these regions.
- Besides, the high P (Precipitation)/E (Evaporation) ratio in temperate regions is responsible for the formation of cold deserts.
- It is covered by sand, gravel, and clay. Several mountains ranges, basins, and large expanses of salt flats can be found here. For example Great Basin Desert.
- It is a cool arid subarctic winter temperatures region covers large landscape for example 1000km strip on the Pacific coast, west of the Andes Mountains Atacama Chile in South America.
- Vegetation is scattered with needle like leaves to reduce the water loss. The animals commonly found in cold deserts include foxes, jackrabbits, kangaroo rats, pocket mice, badger etc.
- In India Ladakh has the mighty Karakoram Range in the North and in the south, it is bound by the Zaskar mountains. Several rivers flow through Ladakh.

**Conclusion**

Cold desert is important biome of the ecosystem there is increased stressed on such regions especially in Ladakh and Lahul Spiti. There is need of conservation of landscape, biological diversity and the cultural heritage in these region with controlled and regulated anthropogenic activities.

**2. What are coral reefs? Discuss their origin. Also, explain the ecological services provided by coral reefs.**

**Approach**

Students are expected to write about the coral reefs and also write about the origin of coral reefs with highlighting the ecological service and its significance.

**Introduction**

A coral reef is an underwater ecosystem characterized by reef-building corals. Reefs are formed of colonies of coral polyps held together by calcium carbonate. Most coral reefs are built from stony corals, whose polyps cluster in groups.

**Body**

Origin:

- Coral polyps are tiny and fleshy sea anemones that live in tropical and subtropical oceans and seas. They live in shallow waters along with microscopic algae called Zooxanthellae, with which they share a symbiotic relationship.
- This algae has photosynthesis abilities that feed the coral polyps with carbon compounds which give them energy. In return, the polyps provide protection to Zooxanthellae.

Ecological services:

- Coral reefs supply a wide range of ecosystem services and goods, such as food provision, shoreline protection, erosion regulation, biogeochemical cycling, and tourism and recreation opportunities.
- Coral reefs are said to be the medicine chests of the sea. Some fish that the corals attract, leave behind some chemical compounds that are similar to the ones used in human hospitals.

- Most of the gross national product of countries with coral reef industries comes from the tourism sector due to these beautiful corals.
- Fishing, diving, and snorkeling on and near reefs add hundreds of millions of dollars to local businesses.
- Coral reefs protect coastlines from storms and erosion, provide jobs for local communities, and offer opportunities for recreation.

### **Conclusion**

Coral reefs have sustained life for over a million years. Its diverse ecosystem keeps marine life running. It would not be in our best interest to interfere with the coral reefs. Conservation methods should therefore be taken to protect these beautiful polyps.

### **3. The presence of geographical features has strong impact on the society, economy and power of a nation. Elucidate.**

#### **Approach-**

Candidates need to elucidate how the presence of geographical features has strong impact on the society, economy and power of a nation. Give strong references and examples and highlight in order to elucidate this.

#### **Introduction:**

Development can be defined as a culmination of economic, social, and political progress that gives rise to higher standards of living, in balance, across the population.

#### **The geographical features of a nation:**

Geographical features refer to the landscape of a region, which encompasses the continual interaction between culture and the natural environment over an extended period.

#### **The presence of geographical features has strong impact on the society, economy and power of a nation.**

- Topography or configuration of the physical features of an area is significant in the context of development as the physical features, in combination with the human interaction, are foundational for the sustenance of life.

- For example: where situated between nations, such as the Himalayas between China and India, mountain ranges can offer the key benefit of protection from a militaristic perspective, but within Russia the Ural Mountains bisect the nation into East and West.
- Geopolitics is the use of geographical framework to understand world affairs, especially concerning the basis of influence, and power of space and territory.
- Trade and natural resources do determine economic development of a nation. Sometimes effect can be negative also.
- For example, when looked at in isolation, Russia's economic development has been restricted by their lack of a warm-water port with access into open sea lanes. Their ports on the Arctic and Pacific, such as Murmansk and Vladivostok, freeze for a few months annually.
- Another example of importance of geographical factor can be demonstrated by example of China. China's geographical location creates potential ocean trade chokepoints that could threaten their economic development.
- The Malacca Strait, at its smallest 2 miles wide, has been a cause for concern as it could potentially prevent access to China, effectively strangling their economy that relies heavily on the gas and oil.
- Moreover, this could have severe social consequences, as a breakdown in the chain of production may result in widespread laying off of workers, reducing disposable income and their quality of life. Nevertheless, it must be acknowledged that with international co-operation and agreement of passage, China's geographical location should be less influential.
- Geographical features are key components in many political decisions and actions. The borders of countries, location of natural resources, access to ports, and the designation of voting districts are a few of the many geographical factors that affect politics.
- Geographical features like location and climate have large effects on income levels and income growth through their effects on transport costs, disease burdens, and agricultural productivity, among other channels.
- As stated earlier, location is an extremely important factor in the development of power because it determines climates, economics, natural resources strategic position, and even national policies. Favourable geographic location results in tremendous economic and strategic advantages.
- Human settlement and cultural development are shaped by geographic features like mountains, deserts, and water. Other factors that affect cultural development are climate, location, topography, water resources, and natural resources.

### **Conclusion**

Geographical features have had a greater influence on the nation's overall development. However, it must be acknowledged that geographical features cannot



be evaluated in isolation; they operate in partnership with political direction to influence all components of development.

