



Mains Practice Question

Q. What is karst topography? Describe its characteristics and significance. (250 words)

24 Apr, 2023 GS Paper 1 Geography

Approach

- Start your answer with a brief introduction about the karst topography.
- Discuss the characteristics and significance separately.
- Conclude accordingly.

Introduction

- Karst topography is a type of landscape that is formed by the dissolution of soluble rocks such as limestone, dolomite, and gypsum. Conditions that promote karst development are well-jointed, dense limestone near the surface; moderate to heavy rainfall; and good groundwater circulation.
- This unique topography is characterized by sinkholes, disappearing streams, caves, and underground drainage systems.
- Karst topography is found in many regions around the world and has significant ecological, geological, and human importance.

Body

Characteristics of Karst topography

Erosional landforms that characterize karst topography:

- **Sinkholes:**
 - Sinkholes are circular depressions in the ground that are formed when the overlying soil and rock collapse into underground cavities.
- **Caves:**
 - Caves are underground chambers and passages that are formed by the dissolution of rock. These can range from small cavities to large, complex systems that span many miles.
 - Mammoth Cave National Park, Kentucky, USA:
 - This park is home to the world's longest known cave system, with over 650 km of explored passageways.
- **Lapies:**
 - It is formed due to differential solution activity along parallel to sub-parallel joints.
 - They are also called grooved, fluted and ridge-like features in an open limestone field.

Depositional landforms that characterize karst topography:

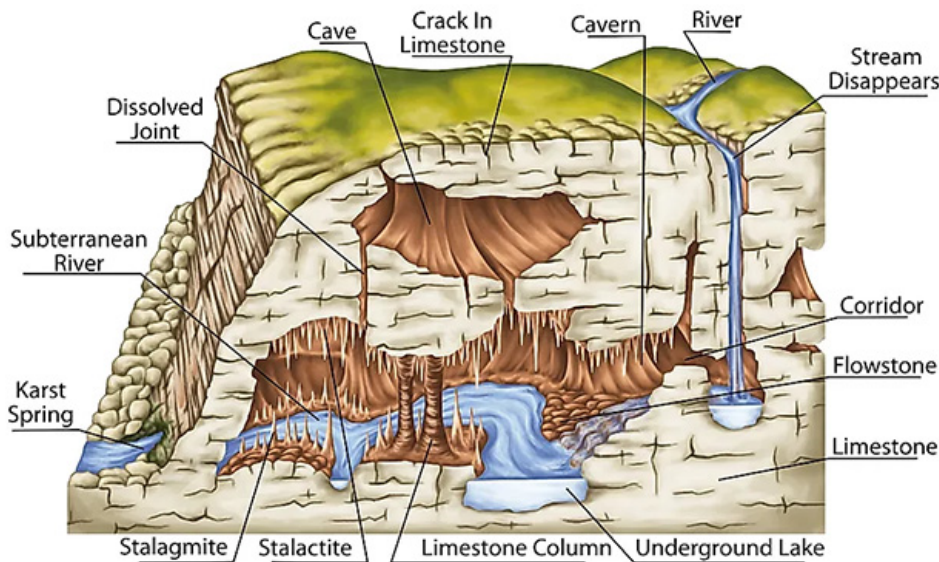
- **Stalactite:**
 - A portion of the roof hangs on the roof and on evaporation of water, a small deposit of limestone is left behind contributing to the formation of a stalactite, growing downwards from the roof.
- **Stalagmite:**

- The remaining portion of the drop falls to the floor. This also evaporates, leaving behind a small deposit of limestone aiding the formation of a stalagmite, thicker and flatter, rising upwards from the floor.
- **Column:**
 - Sometimes, stalactite and stalagmite join together to form a complete pillar known as the column.
 - Ha Long Bay, Vietnam:
 - This UNESCO World Heritage Site is known for its tower-like limestone formations, which are formed by Karst Topography.

Other Characteristics:

- **Disappearing Streams:**
 - Disappearing streams are streams that flow into the ground and disappear into underground drainage systems.
- **Underground Lake:**
 - Most naturally occurring underground lakes are found in areas of Karst topography, where limestone or other soluble rock has been weathered away, leaving a cave where water can flow and accumulate.

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Significance of Karst Topography:

- **Geological Significance:**
 - The dissolution of soluble rocks results in the formation of complex underground drainage systems, which can lead to the creation of vast cave systems.
 - These caves can contain important geological formations, such as stalactites, stalagmites, and flowstones, which provide insights into the Earth's geological history.
- **Human Significance:**
 - Many karst regions around the world are used for agriculture and forestry, and they provide important sources of raw materials, such as limestone for construction.
 - However, human activities can also have negative impacts on karst ecosystems, such as groundwater contamination and soil erosion.
- **Ecological Significance:**
 - It provides habitats for a diverse range of plant and animal species, many of which are unique to karst environments.
 - The porous nature of the rock formations allows water to seep through and form underground aquifers, which provide important sources of freshwater for drinking, irrigation, and industry.

Conclusion

- Karsts are found in widely scattered sections of the world, including the caucous of France; the Kwangsi area of China; the Yucatan Peninsula in the United States. Human activities have negative impacts on karst ecosystems, and it is important to protect and preserve these fragile landscapes.

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