

NCERT MOST IMPORTANT QUESTIONS CLASS – 11

GEOGRAPHY CHAPTER- 4 DISTRIBUTION OF OCEANS AND CONTINENTS

Question 1.

How do lithosphere plates behave along the transform fault?

Answer:

The lithospheric plates slide over each other, neither creating nor destructing any landmass. Instead, the friction arising from the movement of the plates usually causes severe earthquakes and earth tremors.

Question 2.

Why do geographers focus their attention on plate boundaries?

Answer:

Geographers focus their attention on plate boundaries because each plate is a tectonic plate. It is rigid and moves as a single unit. Nearly all major tectonic activity occurs along the plate boundaries.

Question 3.

What does the term ‘supercontinent’ refer to?

Answer:

The term ‘supercontinent’ refers to a single common geological landmass called Pangaea. It has been proposed that all landmasses of the world had formed from this ‘supercontinent’. Pangaea had evolved some 280 million years ago, at the end of the Carboniferous period and by mid-Jurassic age, 150 million years ago. Pangaea land split into Laurasia, the northern continent, and Gondwanaland, the southern continent. About 65 million years ago, i.e. at the end of the Cretaceous, bound mainland were further broken up to give rise to several other continents such as South America, Africa, Australia, and Antarctica.

Question 4.

Discuss the causes of plate movement.

Answer:

Sub-crustal convection currents invoke the mechanism of thermal convection that acts as a driving force for the movement of plates. Hot currents rise, then cool as they reach the surface. At the same time, cool currents sink down. This convectonal movement moves the crustal plates. .. Owing to current movements, the rigid plates of the lithosphere, which ‘float’ on more mobile asthenosphere, are in constant motion.

Question 5.

What is a geological time-scale?

Answer:

The chronology of the geological history of the earth is revealed by its rocks. Geological time scale indicates the hierarchy of time periods during which different rocks of the earth have formed.

Question 6.

What do you mean by 'jig-saw-fit'? Describe the similarities found on the east and west coasts of the Atlantic ocean. What do they suggest?

Answer:

The 'jig-saw-fit' means the landmasses on the east and west coast of the Atlantic ocean can be fitted together. There are many similarities found on the two coasts :

1. The Gulf of Guinea can be fitted into Cape San-Rogue of Brazil, the shoulder of Africa can be fitted into Gulf of Mexico, Western Europe and Eastern coast of North America along with Greenland can be fitted together.
2. Gold deposits of Ghana lands are found on the east and in Brazil on the west.
3. The glacial deposits are found in all landmasses of Gondwana land.

These similarities suggest that these continents were together in the geological past.

Question 7.

Discuss the Continental Drift Theory.

Answer:

Continental Drift Theory was proposed by Alfred Wegner in 1912. He postulated that all landmasses of the world have been formed from one super-continent called Pangaea.

The supercontinent, Pangaea, had evolved some 280 million years ago, at the end of the Carboniferous period and by the mid-Jurassic age, 150 million years ago. Pangaea had split into a northern continent, Laurasia, and a southern continent Gondwanaland. About 65 million years ago, i.e., at the end of the Cretaceous, Gondwanaland further broke up to give rise to several other continents, such as South America, Africa, Australia, and Antarctica. Thus, the present distribution of the continental masses and the oceans are the result of fragmentation of one or more pre-existing masses. These landmasses have drifted apart the intervening hollows having been occupied by the oceans.

There are several pieces of evidence that suggest the existence of Pangaea. This evidence is available in the form of geological matching, palaeoclimatic units, and paleomagnetism.

Question 8.

Describe sea-floor spreading in brief.

Answer:

The present distribution of continents has taken place in the last 65 million years. The drift of continents still continues. The ridges down the middle of ocean floors have been emitting lava continuously. Those mid-oceanic ridges are cracks on the floor of the ocean where molten rocks push up to form a new crust. The crust spreads along the ridge and the ocean basin widens. This phenomenon is known as sea-floor spreading. The Atlantic ocean is getting smaller and the Red Sea is the part of a crack in the crust that will widen

to produce new ocean millions of years ahead in the future. In the past, the widening of the South Atlantic ocean has separated Africa and South America.

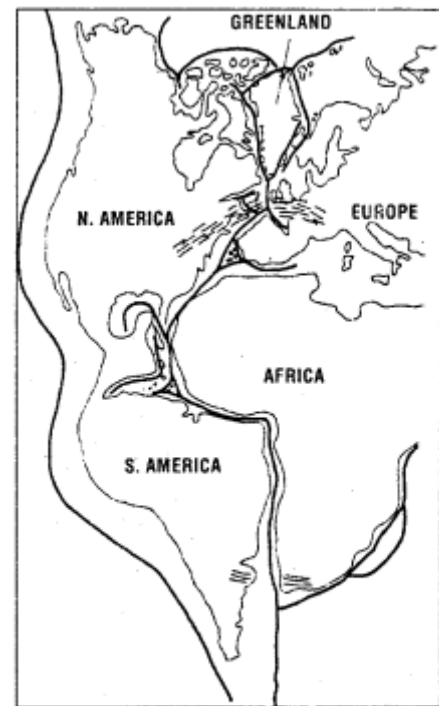


Fig.4.1 : Wegner's Map of Continental Drift
Fitting of the Continents Bordering the Atlantic Ocean

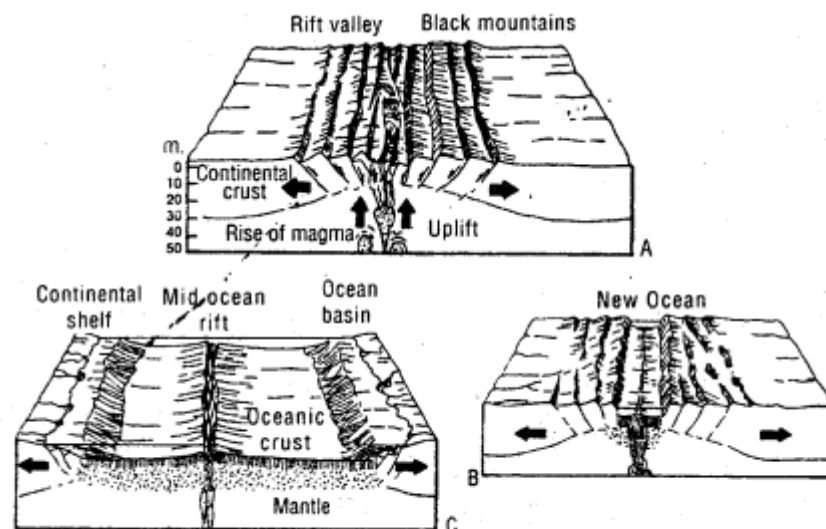


Fig.4.2 : Stages in continental rupture and the opening up of a new ocean basin

Question 9.

Explain the plate tectonic theory and its mechanism.

Answer:

Plate tectonic theory proves that the earth's crust consists of several plates that carry continents and the ocean floors and float on the asthenosphere, moving very slowly, the movement probably resulting from currents in the asthenosphere. As shown in fig., the lithosphere is broken into seven major plates. They include :

1. Pacific plate
2. Eurasian plate
3. Indo-Australian plate

4. African plate
5. North American plate
6. South American plate
7. Antarctic plate

The latest among these is the Pacific plate which is composed of oceanic crust almost entirely. The other plates have both continental and ocean crust. No plate consists of only continental crust. Plates range in thickness from about 70 km. beneath oceans to 150 km. under continents. Each tectonic plate is rigid and moves on a single unit. Nearly all major tectonic activities occur along the plate boundaries.

Based on the relative motion of plates, three kinds of plate boundaries have been recognized. They are :

1. Zones of divergence: These are boundaries along which plates separate and in the process of separation molten materials upwell. This is commonly observed along linear ocean edge where the new lithosphere is created in the form of new ocean floors. Active volcanism and shallow focus earthquakes make such boundaries,
2. Zones of convergence: There are the boundaries along which, the edge of one plate overrides the other. The overridden plate slips down into the mantle and is absorbed. This process is known as subduction.
3. Fracture zones or Transform faults: The plates slide past each other effect creating or destructing the boundaries. However, shallow focus earthquakes may result due to this friction.

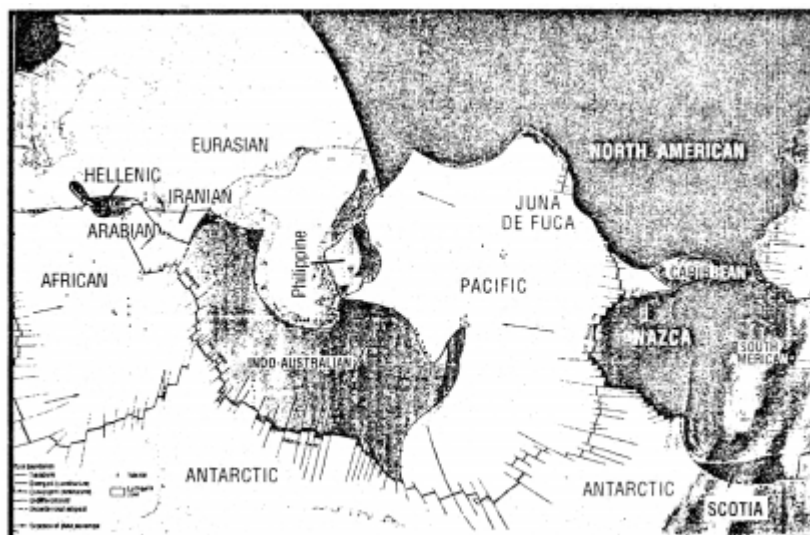


Fig.4.3 : Lithospheric plates

Question 10.

Describe the main features of the Indian plate.

Answer:

Indian ocean floor presents striking topography consisting of a number of elevated ridges and plateaus. Two of the ocean ridges, namely, the Mascarene Plateau, Chagos-Maldweep-Lakshadweep island ridge are said to be the volcanic tracts of two hot spots.

The Northward extension of Ninety-east Ridge indeed in the trench which consumed the seafloor to the north of the Indian continental mass. The Chagos- Lakshadweep ridge linked the ancient Carlsberg ridge with the Southeast Indian ridge during the Eocene period (50 million years ago).

Consequent to the Carlsberg-Southeast Indian ocean ridge, the collision between the Indian plate and the Eurasian plate took place north of the Indian plate giving rise to the Himalayas. The suture between Indian and Eurasian plates in the Himalayan region has been along the Indus and Brahmaputra rivers.