

4. Hydrosphere

Exercises

1 A. Question

Fill in the blanks with suitable answer:

The average depth of the continental shelf is _____.

Answer

65 km or 40 miles

The area of seabed around a large land mass where the sea is relatively shallow compared with the open ocean.

1 B. Question

Fill in the blanks with suitable answer:

One fathom is equal to _____

Answer

6 ft

A fathom is a unit of length 1 fathom equal to 6 feet.

1 C. Question

Fill in the blanks with suitable answer:

The deepest place in the Pacific ocean is ____.

Answer

Mariana Trench

Mariana Trench located in the Western Pacific, it is the deepest place in the world oceans. It is named as Mariana Trench because of nearby Mariana island.

1 D. Question

Fill in the blanks with suitable answer:

The average salinity of the ocean water is _____.

Answer

3.5% or 35 parts per thousand

Seawater in the words ocean has a salinity of approximately 3.5% or 35 parts per thousand. This means that for every 1 liter of seawater there are 35 grams of salt.

1 E. Question

Fill in the blanks with suitable answer:

_____ tides occur during full moon.

Answer

Spring

Tides are rise and fall of sea level caused by the combined effects of the gravitational forces exerted by sun and moon and earth. Spring tides occur just after a new or full moon.

2 A. Question

What is hydrosphere?

Answer

Hydrosphere refers to all the waters on the earth's surface, such as lakes and seas, and sometimes including water over the earth's surface, such as clouds.

2 B. Question

Mention the four major parts of the ocean floor.

Answer

The four major parts of the ocean floor are-1) The Continental Shelf - The area of seabed around a large land mass where the sea is relatively shallow compared with the open ocean. The continental shelf is geologically part of the continental crust.2) The Continental Slope - The slope between the outer edge of the continental shelf and the deep ocean floor. 3) The Deep-Sea Plain - Deep sea plain or Abyssal plain is an underwater plain on the deep ocean floor found at the depth of 3000 to 6000 metres.4) The Trenches - Trenches formed when two plates carrying oceanic crust meet. Ex- Marian Trench, Pacific Trench.

2 C. Question

State the difference between ocean currents and tides.

Answer

Ocean Currents	Tides
Current refers to the direction of flow of water. It describes the motion of water.	It is the alternate rising and falling of the sea, usually twice in each lunar day at a particular place.
Oceanic currents are driven by several factors. They can be caused by wind, gravity, thermohaline circulation and even by tides. Tides create a current in the oceans, near the shore, and in bays and estuaries along the coast	Tides are caused by the gravitational pull of the sun and moon and earth rotation.

*Thermohaline circulation- a process driven by density differences in water due to temperature (thermo) and salinity (haline) in different parts of the ocean

2 D. Question

Distinguish between spring tide and neap tide.

Answer

Spring Tide	Neap Tide
Spring tide is the tide in which the difference between the high and low tide is the greatest.	A neap tide is the tide in which the difference between the high and low tide is the least.
Spring tides occur when the moon is either new or full and the sun, the moon, and the Earth are aligned. When this is the case, their collective gravitational pull on the Earth's water is strengthened.	Neap tides occur twice a month when the sun and moon are at right angles to the Earth. When this is the case, their total gravitational pull on the Earth's water is weakened because it comes from two different directions.

2 E. Question

How can we conserve the oceans?

Answer

There are a number of things we can do to conserve the ocean. We can incorporate small changes in our daily lives which in turn will have a larger impact on saving the oceans. Some of them include:- 1. Reduce the use of plastic. 2. Dispose of hazardous materials responsibly. 3. Don't buy products that contain 'microbeads' that are used to exfoliate. Such beads can be found in 4. bodywashes etc. These microbeads are too small for processing plants to clean them out of the water. 5. Do not litter when you visit beaches.

3. Question

Match the following:

A	B
1. fathom	a) deep sea plain
2. oyashio	b) eastern coast of USA
3. gulf stream	c) cold current
4. sea mounts	d) Indian ocean current
5. agulhas current	e) depth of ocean

Answer

1. Fathom - e) Depth of the ocean

It is a measure of the depth of the ocean.

Fathom is the unit of length equal to 6 feet, mostly used in reference to the depth of water. 2. Oyashio - c) Cold current

Oyashio also was known as oya siwo or Okhostak or Kurile current. it is a cold current originates in the Arctic ocean and flow southward via the Bering sea. 3. Gulf stream - b) Eastern coast of USA

It is a warm and swift Atlantic ocean current. Originates in the Gulf Of Mexico and stretches to the tip of Florida. It makes conditions favourable for fishing in the ocean. 4. Sea mounts- a) Deep-sea mountain

A seamount is technically defined as an isolated rise in elevation of 1000m or more from the surrounding of the seafloor. 5. Agulhas current - d) Indian Ocean Current

Agulhas current is the western boundary current of the southwest Indian ocean. It flows down on the east coast of the African continent.

4 A. Question

Define the following:

continental shelf

Answer

The continental shelf is an underwater landmass which extends from a continent resulting in an area of relatively shallow water compared to the open ocean.

4 B. Question

Define the following:

salinity

Answer

Salinity is defined as the concentration of dissolved salts in a body of water. It is usually expressed in parts per thousand weight. The average salinity of ocean water is 3.5% or 35 parts per thousand.

4 C. Question

Define the following:

warm and Cold currents

Answer

Ocean currents are divided on the basis of temperature into warm and cold currents. The currents that flow from the equator to the poles are warmer than the surrounding waters and hence are called warm currents. The currents that flow from the polar areas to the equator are cooler as compared to the surrounding water and are hence called cold currents.

4 D. Question

Define the following:

high tide and Low tide

Answer

High tide- the High tide is the state of a tide when it is at its highest level. Low tide- the Low tide is the state of the tide when it is at its lowest level.

4 E. Question

Define the following:

Benguela current

Answer

Benguela current is a broad, northward flowing ocean current that forms the eastern portion of the South Atlantic Ocean Gyre. It is a part of the west wind drift of the southern hemisphere.

4 F. Question

Define the following:

tides

Answer

Tides are the alternate rise and fall of sea levels caused by the combined effects of the gravitational pull of the Sun and Moon and the rotation of the Earth. There are two type of tides high tide and low tide.

High tide- the High tide is the state of a tide when it is at its highest level. Low tide- the Low tide is the state of the tide when it is at its lowest level.

5 A. Question

Terms to remember:

Gulf stream

Answer

Gulf stream is the warm ocean current of the North Atlantic Ocean off eastern North America.

5 B. Question

Terms to remember:

salinity

Answer

Salinity is the concentration of dissolved salts in a body of water. The average salinity of the ocean is 3.5% or 35 parts per thousand.

5 C. Question

Terms to remember:

warm currents

Answer

Warm currents are the currents that flow from the equator to the poles which are warmer than the surrounding waters.

5 D. Question

Terms to remember:

Kuroshio current

Answer

The Kuroshio current also known as the Japan current is the warm ocean current that flows northeastwardly off the coast of Japan into the northern Pacific Ocean.

5 E. Question

Terms to remember:

flood tides

Answer

Flood tide is the rising tide occurring between the time when the tide is lowest and when the following tide is highest.

5 F. Question

Terms to remember:

tidal energy

Answer

Tidal energy is a form of hydropower that converts the energy obtained from tides into useful forms of power, mainly electricity. Examples of warm currents- Gulf Stream, Kuroshio, Agulhas current etc.

6. Question

List out the cold and warm currents in the Atlantic ocean.

Answer

The warm currents are-1) North Equatorial current2) South equatorial current3) Equatorial Counter current4) Gulf stream5) Brazil currentThe cold currents are-1) Canary current2) Labrador current3) Falkland current4) South Atlantic drift5) Benguela current