



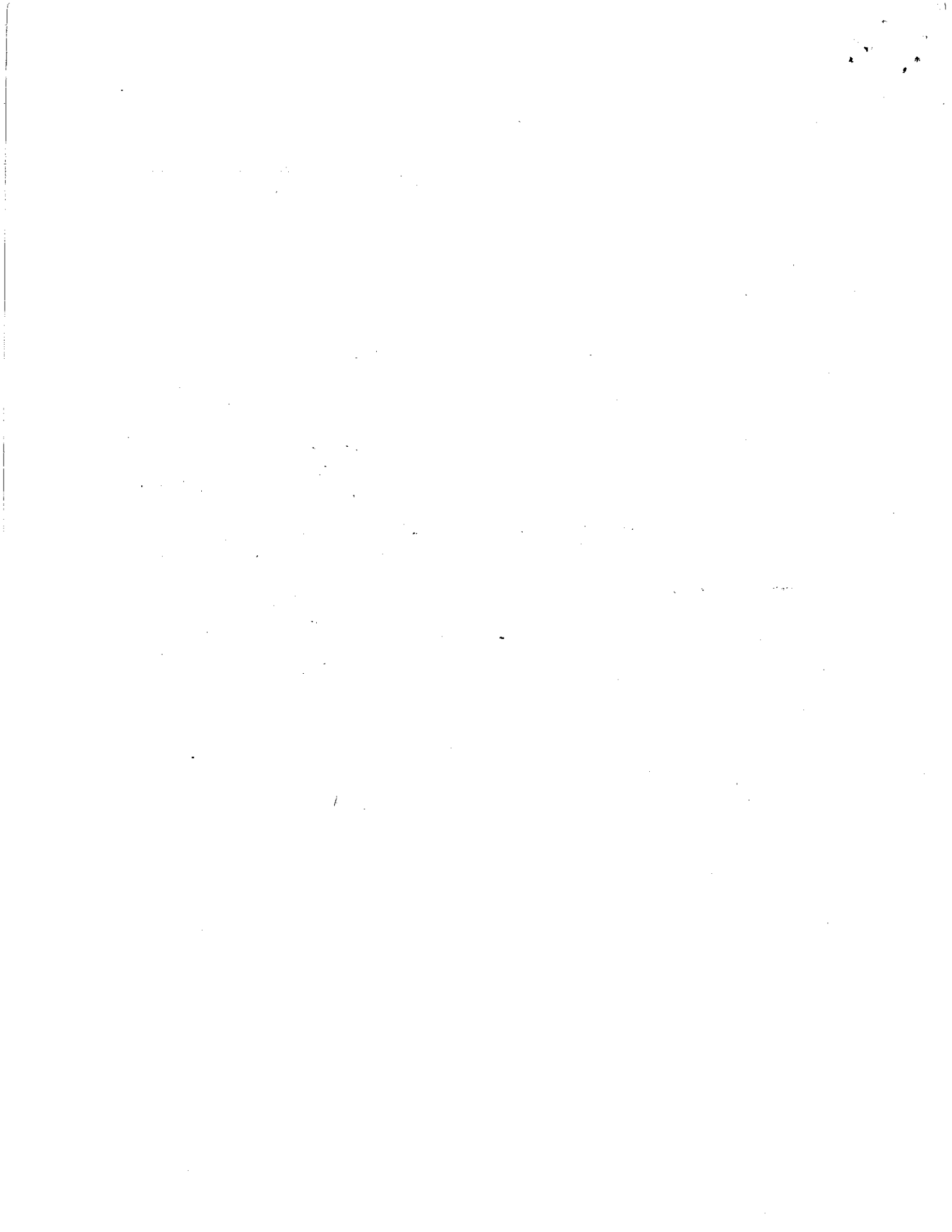
NATIONAL OCEAN SCIENCES BOWL

PRACTICE QUESTIONS

This packet contains 102 questions. The first 100 are paired as toss-up and bonus questions. Questions fall into a variety of categories. Questions may be on biological, chemical, physical or geological topics related to the oceans, estuaries or Great Lakes. In addition, there are questions on maritime history, marine economics and marine literature in the “social sciences” category. Questions on navigation and research equipment fall into the “technology” category. In addition there are questions on geography.

The final 2 questions are the “team challenge” questions, which we are trying out for the first time this year. These questions allow us to incorporate visual aids and ask questions that are a little more complicated than the constraints on toss-up or bonus question allow. These are included to give you an some idea of what to expect. The explanation for how these new questions will be handled in the regional and national final competitions can be found in the official 1999 NOSB rules.

Good luck!



Toss-up
Multiple Choice
Biological

Number 1

Question: Corals are most closely related to...?

Answer W: barnacles

Answer X: sea anemones

Answer Y: clams

Answer Z: sea urchins

Correct Answer: X

Bonus
Multiple Choice
Biological

Number 1

Question: Bioluminescence is used for all the following except...?

Answer W: self-defense

Answer X: maintaining body temperature

Answer Y: attracting prey

Answer Z: species recognition

Correct Answer: X

Toss-up
Multiple Choice
Physical

Number 2

Question: A pycnocline (pik-noh-kline) is a significant change in ...?

Answer W: salinity

Answer X: density

Answer Y: light intensity

Answer Z: turbidity

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 2

Question: The greatest declination of the moon is ...?

Answer W: 5°

Answer X: 18.5°

Answer Y: 23.5°

Answer Z: 28.5°

Correct Answer: Z

**Toss-up
Multiple Choice
Technology**

Number 3

Question: The draft of a ship is the ...?

Answer W: amount of water it displaces.

Answer X: depth of its cargo holds.

Answer Y: number of tons of cargo it can carry.

Answer Z: minimum depth of water in which it can float.

Correct Answer: Z

**Bonus
Multiple Choice
Technology**

Number 3

Question: Ships move from Lake Erie to Lake Ontario by ...?

Answer W: the Welland Canal.

Answer X: the Niagara River.

Answer Y: the St. Lawrence River.

Answer Z: the Detroit River.

Correct Answer: W

Toss-up
Multiple Choice
Biological

Number 4

Question: The phylum of marine organisms that uses stinging cells, or nematocysts, for protection and food gathering is ...?

Answer W: Ctenophora (*teen'-oh-fore'-uh*)

Answer X: Cnidaria (*nye-dair'-ee-uh*)

Answer Y: Mollusca

Answer Z: Echinodermata (*ee-kine-oh-der-mah-tah*)

Correct Answer: X

Bonus
Multiple Choice
Biological

Number 4

Question: The sea fans or fan corals belong to the ...?

Answer W: Order Gorgonacea (*gor-goh-nay'-see-uh*)

Answer X: Phylum Echinodermata (*ee-kine-oh-der-mah-tah*)

Answer Y: Class Hydrozoa

Answer Z: Kingdom Protista

Correct Answer: W

Toss-up
Multiple Choice
Geological

Number 5

Question: Thick unconsolidated sediments are usually encountered ...?

Answer W: in the rift valley of the mid-ocean mountains

Answer X: on the continental rise

Answer Y: in the deep marginal trenches

Answer Z: on the tops of guyots (*ghee'-ohs*)

Correct Answer: X

Bonus
Short Answer
Geological

Number 5

Question: If an earthquake occurs in the Japan Trench, some seismic stations receive no record of the event. What is the name given to those areas of the Earth that do not receive seismic waves from a particular earthquake event?

Answer W: It is called the "Shadow Zone".

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Geography

Number 6

Question: At your location it is 1630 Greenwich Mean Time (1630Z) at local astronomical noon, when the Sun is at its zenith. Your location is at what longitude?

Answer W: 45 degrees 30 minutes E

Answer X: 45 degrees 30 minutes W

Answer Y: 67 degrees 30 minutes W

Answer Z: 67 degrees 30 minutes E

Correct Answer: Y

Bonus
Multiple Choice
Geography

Number 6

Question: At dusk, the smallest angle between the horizon and the North Star (Polaris) is 22 degrees. Your latitudinal position is ...?

Answer W: 44 degrees N

Answer X: 78 degrees N

Answer Y: 22 degrees N

Answer Z: 46 degrees N

Correct Answer: Y

Toss-up
Multiple Choice
Physical

Number 7

Question: In temperate zones the thermocline will be most pronounced during ...?

Answer W: spring

Answer X: summer

Answer Y: fall

Answer Z: winter

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 7

Question: The method of analyzing tides which takes into account the presence of the continents and their effect on tides is ...?

Answer W: harmonic analysis

Answer X: equilibrium tidal theory

Answer Y: dynamic tidal analysis

Answer Z: static tidal analysis

Correct Answer: Y

Toss-up
Multiple Choice
Biological

Number 8

Question: Spicules (*spik'-yools*) in the phylum Porifera serve as a primitive ...?

Answer W: digestive system

Answer X: skeletal system

Answer Y: excretory system

Answer Z: nervous system

Correct Answer: X

Bonus
Multiple Choice
Biological

Number 8

Question: The group of marine animals with the largest number of species identified as threatened or endangered is ...?

Answer W: fish

Answer X: mollusks

Answer Y: echinoderms

Answer Z: mammals

Correct Answer: Z

Toss-up
Multiple Choice
Social Sciences

Number 9

Question: Monterey California was a favorite haunt of this author of numerous books including "The Strange Case of Dr. Jekyll and Mr. Hyde". He was ...?

Answer W: John Steinbeck

Answer X: Robert Redford

Answer Y: James Michener

Answer Z: Robert Louis Stevenson

Correct Answer: Z

Bonus
Short Answer
Social Sciences

Number 9

Question: In order to maintain a "maximum sustainable yield" from a given fishery it is vital that the rate at which fish are taken from the sea not exceed what?

Answer W: The rate of reproduction / reproduction rate.

--OR--

Answer X: The rate of recruitment / recruitment rate.

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Biological

Number 10

Question: What does "eutrophication" (*yoo-troh-fih-cay-shun*) mean in reference to a lake?

Answer W: There is very little living material in the lake.

Answer X: There is an average amount of living material in the lake.

Answer Y: There is no living material in the lake.

Answer Z: There is a great deal of living material in the lake.

Correct Answer: Z

Bonus
Multiple Choice
Biological

Number 10

Question: The most common way that PCBs affect both fish and humans is in causing ...?

Answer W: tumors in the mouth.

Answer X: brain damage.

Answer Y: liver cancer.

Answer Z: a weak heart and blood vessels.

Correct Answer: Y

Toss-up
Multiple Choice
Physical

Number 11

Question: The effect of ebb currents on tides is ...?

Answer W: to cause the height to fluctuate in a regular pattern

Answer X: to decrease the height

Answer Y: to increase the height

Answer Z: to cause the height to fluctuate in an irregular pattern

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 11

Question: Precession (*pre-ce-shun*) of the lunar orbit is responsible for variations in tidal range which have a period of 18.6 ...?

Answer W: days

Answer X: weeks

Answer Y: months

Answer Z: years

Correct Answer: Z

**Toss-up
Multiple Choice
Biological**

Number 12

Question: Kelp lacks ...?

Answer W: a stipe

Answer X: roots

Answer Y: blades

Answer Z: a holdfast

Correct Answer: X

**Bonus
Short Answer
Biological**

Number 12

Question: What are the two (2) major limiting factors controlling the vertical and horizontal distribution of the primary productivity of phytoplankton in the ocean?

Answer W: light & nutrients

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Geological

Number 13

Question: Groins are structures built mainly to ...?

Answer W: prevent local beach erosion

Answer X: serve as fishing locations.

Answer Y: mark property boundaries.

Answer Z: serve as boat docks.

Correct Answer: W

Bonus
Multiple Choice
Geological

Number 13

Question: Which of the following occurs along a seashore as a result of a rise in sea level?

Answer W: marine terraces

Answer X: wave-cut beaches

Answer Y: beach ridges

Answer Z: sand bars

Correct Answer: X

Toss-up
Multiple Choice
Physical

Number 14

Question: Each time a tidal current changes directions there is a period of no current known as ...?

Answer W: a flood current

Answer X: an ebb current

Answer Y: a reversed current

Answer Z: a slack current

Correct Answer: Z

Bonus
Multiple Choice
Physical

Number 14

Question: The primary process by which nutrients are returned to the surface waters is ...?

Answer W: heating of subsurface waters

Answer X: upwelling along coastlines

Answer Y: subsidence where ocean currents meet

Answer Z: deep dwelling organisms surfacing when they die

Correct Answer: X

Toss-up
Multiple Choice
Chemical

Number 15

Question: Water's uniqueness results from the water molecule's...?

Answer W: ionic nature

Answer X: isotopic nature

Answer Y: dipolar nature

Answer Z: caloric nature

Correct Answer: Y

Bonus
Multiple Choice
Chemical

Number 15

Question: The amount of heat required to raise the temperature of a substance 1 degree C is the...?

Answer W: heat content of the substance

Answer X: heat capacity of the substance

Answer Y: temperature of the substance

Answer Z: kinetic energy of the substance

Correct Answer: X

**Toss-up
Multiple Choice
Biological**

Number 16

Question: This toxic chemical led to the "walleye scare" of the 1970s. It is ...?

Answer W: mercury

Answer X: lead

Answer Y: sulfur

Answer Z: sodium

Correct Answer: W

**Bonus
Multiple Choice
Biological**

Number 16

Question: The spring turnover is important in a lake system because ...?

Answer W: the action stirs nutrients throughout the lake's depth.

Answer X: temperature equalization throughout the lake is essential for spawning.

Answer Y: the turnover uncovers organisms buried during the winter months.

Answer Z: turnover allows light to reach the deepest, normally darkest part of the lake.

Correct Answer: W

Toss-up
Multiple Choice
Technology

Number 17

Question: The greatest danger to those few scientists brave enough to dive under Antarctic ice is ...?

Answer W: the negative-2-degree Celsius water

Answer X: losing track of the exit hole

Answer Y: large carnivorous predators

Answer Z: venomous benthic dwellers

Correct Answer: X

Bonus
Multiple Choice
Technology

Number 17

Question: Side-scanning sonar is towed above the sea floor when the researchers are seeking the location of what ocean floor feature?

Answer W: hydrothermal vents

Answer X: particulates

Answer Y: manganese concentrations

Answer Z: surface waves

Correct Answer: W

**Toss-up
Multiple Choice
Biological**

Number 18

Question: A parasitic fish found in the Great Lakes is the ...?

Answer W: sculpin

Answer X: livebearer

Answer Y: sea lamprey

Answer Z: sucker

Correct Answer: Y

**Bonus
Multiple Choice
Biological**

Number 18

Question: Which one of these is **not** an advantage of fish species spawning at different times of the year?

Answer W: There is less crowding of young.

Answer X: There is less competition for food among larvae.

Answer Y: There are different foods available at different times of the year.

Answer Z: It promotes genetic diversity.

Correct Answer: Z

W. Newman 10-2000-0

Toss-up
Multiple Choice
Physical

Number 19

Question: One likely result of El Niño is ...?

Answer W: cooler coastal water off California

Answer X: flooding in Peru

Answer Y: increasing marine bird populations in Oregon

Answer Z: melting of icecaps

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 19

Question: The Beaufort scale uses the condition of the sea to infer ...?

Answer W: water temperature

Answer X: water depth

Answer Y: wind speed

Answer Z: wave height

Correct Answer: Y

Toss-up
Multiple Choice
Geological

Number 20

Question: What percent of the world's fresh surface water is contained in the Great Lakes?

Answer W: 10

Answer X: 20

Answer Y: 50

Answer Z: 66

Correct Answer: X

Bonus
Multiple Choice
Geological

Number 20

Question: The waters in areas with limestone bedrock are usually not heavily acidified by acid rain because the acid rain in these areas is neutralized by the...

Answer W: buffering action of the rock.

Answer X: porous nature of the rock .

Answer Y: smoothness of the rock.

Answer Z: none of the above

Correct Answer: W

Toss-up
Multiple Choice
Biological

Number 21

Question: The non-indigenous fish species most often caught in Lake Michigan by commercial fishermen is ...?

Answer W: ruffe (*rough*)

Answer X: salmon

Answer Y: alewife (*ale-wife*)

Answer Z: white perch

Correct Answer: Y

Bonus
Short Answer
Biological

Number 21

Question: Two Great Lakes' fish do not have pectoral or pelvic fins. Name them.

Answer W: the eel & the lamprey

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Chemical

Number 22

Question: The energy represented by the latent heat of melting is being used to...?

Answer W: raise the temperature of the ice

Answer X: raise the temperature of liquid water

Answer Y: break hydrogen bonds

Answer Z: break Van der Waals bonds

Correct Answer: Y

Bonus
Multiple Choice
Chemical

Number 22

Question: The latent heat of vaporization of water is higher than its latent heat of melting because...?

Answer W: all the hydrogen bonds need to be broken at the boiling point.

Answer X: there are more hydrogen bonds present in the water at 100 degrees C than at 0 degrees C.

Answer Y: all hydrogen bonds need to be broken at the melting point.

Answer Z: water is less dense at 100 degrees C.

Correct Answer: W

Toss-up
Multiple Choice
Physical

Number 23

Question: Ekman transport predicts that in the Northern Hemisphere water will move...?

Answer W: to the right of the wind.

Answer X: to the left of the wind.

Answer Y: opposite to the wind.

Answer Z: in the same direction as the wind.

Correct Answer: W

Bonus

Number 23

Short Answer

Physical

Question: If you lowered a styrofoam cup to 100 meters, what would happen? And why?

Answer W: It would shrink in size, because the water pressure would compress the air bubbles within the styrofoam.

Answer X: *(underlined words indicate the key concepts that must be given for the answer to be correct)*

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Geological

Number 24

Question: Lead-210 with a half-life of 22 years is used to determine the rate of sediment accumulation. If the concentration or activity of lead-210 at a site is found to be reduced by half from the surface to a depth of 11 centimeters, the sediment accumulation rate is...?

Answer W: 2 cm/yr

Answer X: 1 cm/yr

Answer Y: 0.5 cm/yr

Answer Z: indeterminable

Correct Answer: Y

Bonus

Number 24

Short Answer

Geological

Question: What biogeochemical process or processes permitted the development of an O₂ containing atmosphere on Earth?

Answer W: Photosynthesis

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Biological

Number 25

Question: The world's largest fish is a filter-feeder that depends on plankton as a food source. This fish is the ...?

Answer W: Mola mola

Answer X: Blue whale

Answer Y: Whale shark

Answer Z: Megamouth shark

Correct Answer: Y

Bonus
Short Answer
Biological

Number 25

Question: In their natural habitat, penguins are never taken as prey by polar bears. What's the main reason for this?

Answer W: Polar bears are an Arctic species and/or penguins are limited to the southern hemisphere.

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Physical

Number 26

Question: During ebb current the level of the water along the shore...?

Answer W: rises

Answer X: falls

Answer Y: fluctuates

Answer Z: is unchanged

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 26

Question: The movement of sediment along the shore by wave action is called...?

Answer W: rip current

Answer X: longshore transport

Answer Y: swash

Answer Z: longshore current

Correct Answer: X

Toss-up
Multiple Choice
Biological

Number 27

Question: What is the term for the light-producing organs of bioluminescent organisms?

Answer W: photosomes

Answer X: photochromes

Answer Y: photophores

Answer Z: photoblasts

Correct Answer: Y

Bonus
Multiple Choice
Biological

Number 27

Question: What is the term used to describe organisms which are planktonic only in the larval stage?

Answer W: holoplankton

Answer X: meroplankton

Answer Y: femtoplankton

Answer Z: picoplankton

Correct Answer: X

Toss-up
Multiple Choice
Geological

Number 28

Question: If a peat bed can be found beneath the ocean beach of a barrier island, it is evidence that the ...?

Answer W: beach is very young

Answer X: beach is becoming increasingly coarse

Answer Y: longshore transport is decreasing

Answer Z: barrier island is moving landward

Correct Answer: Z

Bonus
Multiple Choice
Geological

Number 28

Question: The Atlantic coast south of New York is generally in a state of subsidence due to tectonic processes and ...?

Answer W: extensive marine erosion

Answer X: high rates of sediment deposition

Answer Y: rising sea level

Answer Z: increasing hurricane activity

Correct Answer: X

**Toss-up
Multiple Choice
Chemical**

Number 29

Question: An alkaline solution has a pH of?

Answer W: 7

Answer X: 9

Answer Y: 0

Answer Z: 4

Correct Answer: X

**Bonus
Multiple Choice
Chemical**

Number 29

Question: Organic molecules are organized around the atom of...?

Answer W: oxygen

Answer X: carbon

Answer Y: hydrogen

Answer Z: nitrogen

Correct Answer: X

Toss-up
Multiple Choice
Technology

Number 30

Question: The chronometer developed by John Harrison was valuable because it made possible the accurate determination of ...?

Answer W: latitude

Answer X: true north

Answer Y: inclination

Answer Z: longitude

Correct Answer: Z

Bonus
Multiple Choice
Technology

Number 30

Question: Sixty kilometer-wide strips of the ocean floor can be mapped using ...?

Answer W: the GLORIA sonar system

Answer X: an echo sounder

Answer Y: explosion seismic surveys

Answer Z: SEASAT altimeter

Correct Answer: W

Toss-up
Multiple Choice
Physical

Number 31

Question: Salinity is expressed as...?

Answer W: parts per thousand by weight

Answer X: parts per million by weight

Answer Y: parts per hundred by volume

Answer Z: grams per cubic centimeter

Correct Answer: W

Bonus
Multiple Choice
Physical

Number 31

Question: Wavelengths of light represented by **this** color are absorbed at the shallowest depth by ocean water. This color is...?

Answer W: blue

Answer X: green

Answer Y: yellow

Answer Z: red

Correct Answer: Z

Toss-up
Multiple Choice
Biological

Number 32

Question: The coral symbiont zooxanthellae is a form of...?

Answer W: dinoflagellate

Answer X: diatom

Answer Y: bacteria

Answer Z: fungi

Correct Answer: W

Bonus
Multiple Choice
Biological

Number 32

Question: Which of the following organisms is classified as nekton?

Answer W: salps

Answer X: foraminifera

Answer Y: Portuguese Man o' War

Answer Z: striped marlin

Correct Answer: Z

Toss-up
Multiple Choice
Geological

Number 33

Question: One hundred eighty million years ago this super-continent began to break up. It was called...?

Answer W: Laurasia

Answer X: Gondwanaland

Answer Y: Tethys

Answer Z: Pangaea

Correct Answer: Z

Bonus
Multiple Choice
Geological

Number 33

Question: The approximate latitude at which rocks that contain magnetite particles were formed can be determined by measuring the ...?

Answer W: intensity of the rocks' magnetic field

Answer X: magnetic dip of the particles

Answer Y: the magnetic polarity of the particles

Answer Z: the apparent polar wander of the particles

Correct Answer: X

Toss-up
Multiple Choice
Social Sciences

Number 34

Question: The first Europeans known to have traveled to North America were the ...?

Answer W: Spanish

Answer X: Phoenicians

Answer Y: Portuguese

Answer Z: Vikings

Correct Answer: Z

Bonus
Multiple Choice
Social Sciences

Number 34

Question: An usual voyage that attempted to reach the North Pole was initiated in 1893 aboard the vessel...?

Answer W: National

Answer X: Fram

Answer Y: H.M.S. Beagle

Answer Z: Meteor

Correct Answer: X

Toss-up
Multiple Choice
Physical

Number 35

Question: The greatest amount of heat loss from the world's ocean occurs through...?

Answer W: ocean currents

Answer X: conduction

Answer Y: radiation

Answer Z: evaporation

Correct Answer: Z

Bonus
Multiple Choice
Physical

Number 35

Question: Equatorial currents are driven primarily by...?

Answer W: the trade winds

Answer X: the doldrums

Answer Y: thermohaline conditions

Answer Z: heat from the Earth's interior

Correct Answer: W

Toss-up
Multiple Choice
Chemical

Number 36

Question: When carbon dioxide combines with ocean water, it produces...?

Answer W: carbonate

Answer X: bicarbonate

Answer Y: carbonic acid

Answer Z: calcium carbonate

Correct Answer: X

Bonus
Multiple Choice
Chemical

Number 36

Question: The "Rule of Constant Proportions" ...?

Answer W: allows oceanographers to determine salinity from the concentration of a single, major ion in seawater.

Answer X: means that net evaporation is constant at all distances on either side of the equator.

Answer Y: means that the temperature in the Arctic Ocean is constant below the "density floor".

Answer Z: says that the annual average of infrared radiation in the atmosphere remains constant.

Correct Answer: W

Toss-up
Multiple Choice
Geological

Number 37

Question: Linear or circular coral reefs separated from the island or mainland shore by a lagoon are called?

Answer W: atolls

Answer X: barrier reefs

Answer Y: fringing reefs

Answer Z: flat reefs

Correct Answer: X

Bonus
Multiple Choice
Geological

Number 37

Question: A classic example of hot spot-generated volcanic peaks that originated at least 70 million years ago is the ...?

Answer W: Line Islands

Answer X: Mariana Islands

Answer Y: St. Pauls Rocks

Answer Z: Hawaiian Islands

Correct Answer: Z

Toss-up
Multiple Choice
Physical

Number 38

Question: The maximum density of seawater at the surface of the world's oceans would occur ...?

Answer W: at 0° C

Answer X: at 4° C

Answer Y: at its freezing point

Answer Z: after it turns to ice

Correct Answer: Y

Bonus
Short Answer
Physical

Number 38

Question: What is the name given to the tides which have the smallest tidal range?

Answer W: neap tides

Answer X:

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Social Sciences

Number 39

Question: The theory of continental drift was first presented in 1912 by...?

Answer W: Harry Hess

Answer X: Frederick Vine

Answer Y: Alfred Wegener (*Veh'-geh-ner*)

Answer Z: Sir Edward Bullard

Correct Answer: Y

Bonus
Multiple Choice
Social Sciences

Number 39

Question: Benjamin Franklin's nephew, Timothy Folger, produced the first map of the ...?

Answer W: North Atlantic Ocean

Answer X: Gulf Stream

Answer Y: Labrador Currents

Answer Z: U.S. Coastal Waters

Correct Answer: X

Toss-up
Multiple Choice
Physical

Number 40

Question: The distance from crest to crest on adjacent wave forms is the ...?

Answer W: wave height

Answer X: wavelength

Answer Y: steepness

Answer Z: wave period

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 40

Question: Particles move back and forth in the direction of energy transmission in a medium that is transmitting this kind of wave. This kind of wave is called a...?

Answer W: primary wave

Answer X: secondary wave

Answer Y: orbital wave

Answer Z: deep water wave

Correct Answer: W

Toss-up
Multiple Choice
Chemical

Number 41

Question: Salinity is a measure of the salt content in oceanic waters. Among this group, the oceanic region with the highest average salinity would be the...?

Answer W: Atlantic Ocean

Answer X: Mediterranean Sea

Answer Y: Arctic Ocean

Answer Z: Gulf of Mexico

Correct Answer: X

Bonus
Multiple Choice
Chemical

Number 41

Question: When sea ice forms in the Antarctic, the ...?

Answer W: decreased albedo leads to more energy being absorbed by the ocean.

Answer X: surface water becomes saltier because the ice rejects salt.

Answer Y: albedo increases and more solar energy will reach the ocean.

Answer Z: surface waters becomes less saline as salt is locked up in the ice.

Correct Answer: X

ANSWER: X

Toss-up
Multiple Choice
Physical

Number 42

Question: After swell "touches bottom" upon approaching the shore which of the following does **NOT** occur?

Answer W: wavelength decreases

Answer X: wave velocity decreases

Answer Y: wave steepness decreases

Answer Z: wave height increases

Correct Answer: Y

Bonus
Multiple Choice
Physical

Number 42

Question: The dominant restoring force for capillary waves generated in a sea area is...?

Answer W: gravity

Answer X: friction

Answer Y: Coriolis effect

Answer Z: surface tension

Correct Answer: Z

Toss-up
Multiple Choice
Geological

Number 43

Question: Sediment particles eroded from continental rocks are called...?

Answer W: authigenic

Answer X: hydrogenous

Answer Y: lithogenous

Answer Z: biogenous

Correct Answer: Y

Bonus
Short Answer
Geological

Number 43

Question: A guyot (*ghee-oh*) is a name for what?

Answer W: A flat-topped seamount

--OR--

Answer X: a flat-topped mountain under the ocean

Answer Y:

Answer Z:

Correct Answer:

Toss-up
Multiple Choice
Biological

Number 44

Question: A barnacle is an example of the type of feeder called a...?

Answer W: filter feeder

Answer X: opportunistic feeder

Answer Y: active predator

Answer Z: grazer

Correct Answer: W

Bonus
Multiple Choice
Biological

Number 44

Question: Green sea turtles are not green in color. The reason they are called Green sea turtles is that ...?

Answer W: the fat deposits inside them are green

Answer X: in their preferred habitat refracted light makes them appear green

Answer Y: they were first identified by biologist, Jacob Green

Answer Z: they feed primarily on green algae

Correct Answer: W

Toss-up
Multiple Choice
Physical

Number 45

Question: A tsunami is an example of a...?

Answer W: deep-water wave

Answer X: shallow-water wave

Answer Y: forced wave

Answer Z: capillary wave

Correct Answer: X

Bonus
Multiple Choice
Physical

Number 45

Question: The interference pattern resulting from swell that is generated in different locations coming together crest to crest (in phase) is...?

Answer W: reflective

Answer X: constructive

Answer Y: destructive

Answer Z: mixed

Correct Answer: X

**Toss-up
Multiple Choice
Biological**

Number 46

Question: Sponges belong to which of the following phyla?

Answer W: chysophyta

Answer X: porifera

Answer Y: echinodermata

Answer Z: cnidaria

Correct Answer: X

**Bonus
Multiple Choice
Biological**

Number 46

Question: Which of the following is not a symbiotic relationship found among marine organisms?

Answer W: algal cells living within the tissue of flatworms

Answer X: bioluminescent bacteria living in the body cavities of squid

Answer Y: polychaete worms living among the gills of groupers

Answer Z: anemones attached to the shells of hermit crabs

Correct Answer: Y

Toss-up
Multiple Choice
Geological

Number 47

Question: Before it was possible to date the age of rocks in years, relative dating was achieved using the ...?

Answer W: lithology of rock layers

Answer X: fossil content of rock layers

Answer Y: thickness of rock layers

Answer Z: density of rock layers

Correct Answer: X

Bonus
Multiple Choice
Geological

Number 47

Question: A layer including crustal rock and upper mantle rock created by volcanism and other tectonic processes is called the ...?

Answer W: lithosphere

Answer X: asthenosphere

Answer Y: moho

Answer Z: basalt layer

Correct Answer: W

Toss-up
Multiple Choice
Physical

Number 48

Question: The time that elapses between new moon and full moon is roughly...?

Answer W: one week

Answer X: one month

Answer Y: two weeks

Answer Z: none of the above

Correct Answer: Y

Bonus
Multiple Choice
Physical

Number 48

Question: The difference between the heights of low tide and high tide is the...?

Answer W: tidal period

Answer X: tidal range

Answer Y: diurnal inequality

Answer Z: tidal precession

Correct Answer: X

Toss-up
Multiple Choice
Geological

Number 49

Question: An example of a primary coast is a...?

Answer W: volcanic coast

Answer X: wave-erosion coast

Answer Y: marine-deposition coast

Answer Z: coral-reef coast

Correct Answer: W

Bonus
Multiple Choice
Geological

Number 49

Question: Beach slope increases as beach sediment becomes...?

Answer W: more angular

Answer X: coarser

Answer Y: finer

Answer Z: none of the above

Correct Answer: X

Toss-up
Multiple Choice
Physical

Number 50

Question: The equilibrium theory of tides assumes an ocean...?

Answer W: is without friction

Answer X: lies in rectangular basins

Answer Y: has varying depths

Answer Z: contains water movements that are only vertical

Correct Answer: W

Bonus
Multiple Choice
Physical

Number 50

Question: Velocities of reversing tidal currents are at maximum values...?

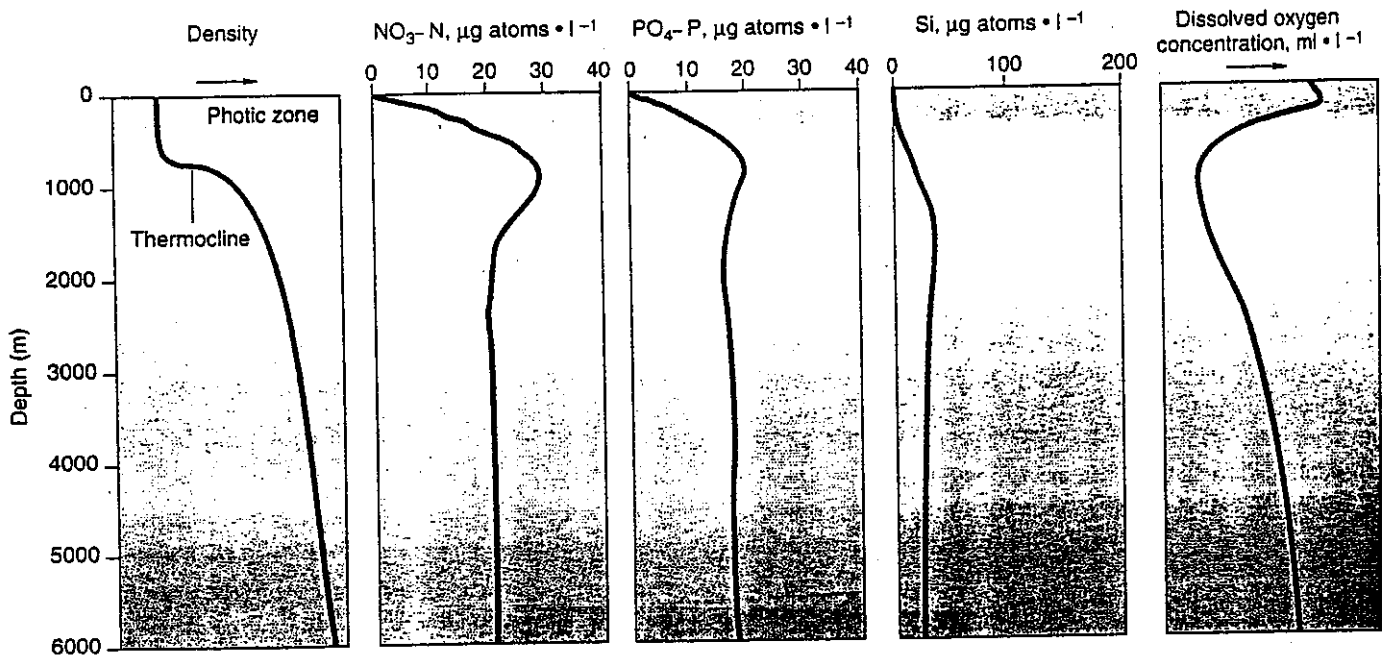
Answer W: at high tide extremes

Answer X: at low tide extremes

Answer Y: half way between tidal extremes

Answer Z: during flood current

Correct Answer: Y

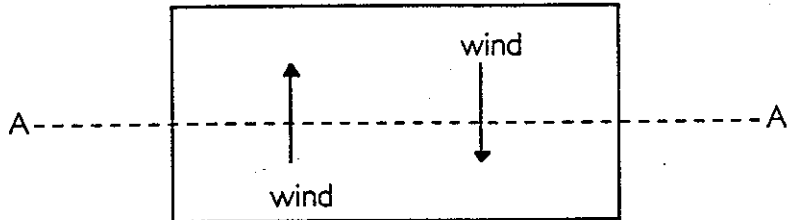


Question: The vertical profiles of nutrients and dissolved oxygen are somewhat opposite in shape to one another. Why do they appear to be inversely related to each other both at surface and at depth?

Answer: Nutrients are depleted in the photic zone due to removal by phytoplankton during primary production. Oxygen is supplied by primary production in these waters and shows up at an oxygen maximum. Dissolved oxygen decreases as the thermocline is reached due to respiration.

Question:

Given this plan view in the Northern Hemisphere, describe the resultant mesoscale water movement and draw a cross section of the ocean surface along A-A'.



Answer:

