

# Fresh and Saltwater Systems Unit Test

## Topic 1 - A World of Water

1. We would have no water on the Earth in 3000 years if it were not for the water cycle. The Earth's water cycle is very important because it controls ...
  - A. the quality of the water
  - B. the temperature range of the water
  - C. the distribution of the water
  - D. the amount of water
2. Potable or fresh water represents a very small amount of water on the Earth. The amount of fresh water represent only about ....
  - A. .003%
  - B. .311%
  - C. 1.31%
  - D. 3%
3. During the Ice Ages, **glaciers** covered a large portion of the Earth's surface. In fact, at the height of the Ice Age glaciers covered as much as ...
  - A. 14% of the Earth's surface
  - B. 21% of the Earth's surface
  - C. 28% of the Earth's surface
  - D. 35% of the Earth's surface
4. Freshwater that is potable and accessible is not fairly distributed throughout the Earth. The country that has the greatest amount of fresh water is ...
  - A. Brazil
  - B. Canada
  - C. China
  - D. United States
5. In order for water systems to remain healthy and plentiful, water management policies must balance the water needs of ...
  - A. different ethnic groups around the world
  - B. people, industry, wildlife and the environment
  - C. nations that have a lot and are not using it
  - D. organisms that live off the land

## Topic 2 - Earth's Frozen Water

6. Glaciers are moving masses of snow and ice. A glacier that forms over an extensive area of relatively level land and flows outwards from its source is called an ...
  - A. icefield
  - B. iceberg
  - C. ice flow
  - D. ice cap
7. When there is a large crack in the glacier, this is formed ....
  - A. an icefall
  - B. a crevasse
  - C. an outflow
  - D. an ice ridge

8. Icebergs are very large chunks of ice that break off, or flow from continental glaciers into the ocean. The action of glacial ice breaking off is called ...
- A. calving
  - B. shearing
  - C. retreating
  - D. horning
9. Glaciers shape the land when they move. Scientists know that two or more valley glaciers have eroded a mountain summit because they see the formation of a ...
- A. arête
  - B. cirque
  - C. horn
  - D. striation
10. Land features and formations are evidence of Glacial movement (advancing or retreating). A winding ridge of sand and gravel left behind by a retreating glacier is called ...
- A. a moraine
  - B. a till
  - C. an outwash
  - D. an esker
11. Glaciers affect the water cycle. The direct influence they have is that they ...
- A. speed up the volume of water when they melt
  - B. increase the mixture rate of fresh and saltwater
  - C. slow down the passage of water through the cycle
  - D. prevent groundwater from evaporating into the atmosphere

### Topic 3 - Fresh Water Systems

12. Water quality is tested all the time. To determine the depth to which sunlight will penetrate the water, or clarity, investigator check for ...
- A. aquatic organisms
  - B. bacteria count
  - C. suspended matter
  - D. aquatic vegetation
13. The land feature that determines in which direction the waters will flow is called the ....
- A. drainage plain
  - B. continental divide
  - C. elevation gradient
  - D. glacial stream
14. A raindrop landing in the extreme southeastern corner of Alberta will end up in ...
- A. Hudson's Bay
  - B. Arctic Ocean
  - C. Atlantic Ocean
  - D. Gulf of Mexico
15. To determine what happens when land use affects a particular watershed, watershed management technicians use this tool ...
- A. GPS
  - B. GIC
  - C. GRS
  - D. GIS

16. The reason that researchers need to know how much water is flowing through a river channel at a given time is because it helps scientists ...
- A. **predict deposition**
  - B. **prevent flooding**
  - C. **predict flooding**
  - D. **prevent erosion**
17. The system of water that flows through porous rock is called ...
- A. **an aquifer**
  - B. **a riverbed**
  - C. **a water table**
  - D. **groundwater**
18. Water in irrigation canals can be contaminated by from run-off containing pesticides and fertilizers. This type of contamination is considered to be ...
- A. **point sources**
  - B. **non-point sources**
  - C. **direct outflow**
  - D. **groundwater**

#### **Topic 4 - The Oceans**

19. Traces of almost every chemical substance on Earth can be found in ocean water, with ocean water containing many different kinds of salts. Of the entire amount of ocean water on the surface of the Earth, sodium, chloride, magnesium, sulfur, calcium, potassium and others represent approximately ...
- A. **3.5%**
  - B. **6.67%**
  - C. **0.67%**
  - D. **0.35%**
20. When tectonic plates push against each other, mountain ranges are formed. The long underwater mountain chains that run along the centre of the oceans are the youngest areas of the sea floor and are called ....
- A. **mid-ocean trenches**
  - B. **abyssal plains**
  - C. **ocean ridges**
  - D. **continental slopes**
21. Waves move across the surface of the ocean and eventually hit the shore. When the crest eventually outruns the trough, it topples forward onto the shore and is called a ...
- A. **swell**
  - B. **breaker**
  - C. **tsunami**
  - D. **longshore current**
22. In a few places in the world - like Nova Scotia - there are "singing sands". The fiddle-like sound is made when the ...
- A. **waves hit the rocks**
  - B. **beaches are heated by the sun**
  - C. **particles of sand rub together**
  - D. **temperature of the air and water are the same**

23. The highest tide is called a spring tide and the lowest tide is called a neap tide. The difference in level between the high tide and the low tide is called the ...
- A. tidal range
  - B. tidal shift
  - C. tidal divergence
  - D. tidal skew
24. Wind patterns around the world often determine the intensity of waves in other places. In the northern hemisphere we experience Westerlies, which travel in a clockwise direction. Westerlies in the southern hemisphere turn in the opposite direction because ...
- A. of the heat from the equator
  - B. the east to west rotation of the Earth
  - C. the west to east rotation of the Earth
  - D. of the tilt of the Earth's axis

### Topic 5 - Living In Water

25. There are many different organisms living in the oceans. The greatest diversity can be found ...
- A. along the shoreline
  - B. in the top 180 meters
  - C. in the bottom of the ocean
  - D. along the mid-ocean ridge
26. In water that is constantly moving, aquatic organisms have adapted to this changing environment in many different ways. Sea Stars have special adaptations that help them cling to solid surfaces called ....
- A. tentacles
  - B. tube feet
  - C. triceps
  - D. trio appendages
27. Whales are able to devour large amounts of plankton because they can filter them through this adaptation ...
- A. gills
  - B. blubber
  - C. baleen
  - D. barnacles
28. There are many different kinds of single-celled organisms living in the oceans. More than half of the plankton is made up of single-celled ...
- A. diatoms
  - B. amoebas
  - C. foraminifera
  - D. paramecium
29. Too many nutrients in an aquatic ecosystem can cause populations of algae to increase rapidly. Although this is good for the algae, it is not so good for other organisms because the algae ...
- A. take up too much space
  - B. take away all the nutrients
  - C. reduce the oxygen supply
  - D. make the water smell bad

30. In the deep reaches of the ocean floor, certain bacteria can survive in this extreme environment and are able to make food and oxygen for other organisms through a process called ...
- A. photosynthesis
  - B. chemosynthesis
  - C. hydrosynthesis
  - D. thermosynthesis

### Topic 6 - Water Quality and Water Management

31. Hard water contains an excessive amount of dissolved solids. Soft water contains fewer dissolved salts especially these ...
- A. magnesium and sodium
  - B. calcium and phosphorus
  - C. sodium and phosphorus
  - D. calcium and magnesium
32. Contaminants are toxic substances that do not occur naturally in the environment, making water unsafe for living organisms. PCB's are toxic substances that are chemicals used for making ....
- A. electrical circuits
  - B. electrical transformers
  - C. thermocouples
  - D. hydro-electric turbines
33. pH is a measure of how acidic or basic a substance is. A scale is used that ranges from 0-14. Normal rain is around 5.6 on the pH scale. Acid rain would be around ...
- A. 0.5
  - B. 2.0
  - C. 7.0
  - D. 8.3
34. There are many different kinds of organisms that live in the lakes, ponds, rivers and streams throughout Alberta. Caddisfly larvae live in streams and rivers. They build small cases to protect themselves in the water from predators. These cases are made by using ...
- A. secretions from their abdomen
  - B. dead organisms in the water
  - C. plant material and sand
  - D. leaves and twigs that have fallen in the water
35. Many different species that live in or near aquatic environments can be used as bio-indicator species. The Whitefish Lake First Nations people are working with scientists to study the cause and effects of outbreaks of '*botulism*' in this species ...
- A. ducks
  - B. turtles
  - C. frogs
  - D. toads
36. Water management is very important in order to achieve sustainability of this natural resource. Of the water that is available for Canadians to drink, water treatment plants have processed this much of it already ...
- A. 25%
  - B. 48%
  - C. 57%
  - D. 81%

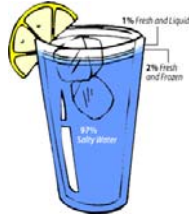
37. Compressed sheets of ice and snow cover about 10% of the Earth's land area and lock up this much of the planet's fresh water supply in the solid state...
- A. 50%
  - B. 60%
  - C. 75%
  - D. 90%
38. An upland area that is fed by two or more glaciers is called an ....
- A. icefall
  - B. icefield
  - C. ice cap
  - D. ice slope
39. The bowl-shaped basins that are eroded by valley glaciers in the sides of mountains are called ...
- A. striations
  - B. horns
  - C. arêtes
  - D. cirques
40. The most recent volcanic action on Mount St. Helens in the United States occurred in Oct 2004. The last time it erupted, it sent an ash plume into the atmosphere and affected communities 500 miles away. What do scientists think it could also trigger, if many other volcanoes erupted at the same time?
- A. An Ice Age
  - B. Global Warming
  - C. Flooding
  - D. Earthquakes
41. The upstream areas of a watershed are called headwaters. It is here that the streams converge to form rivers. The endpoint of the water flowing through a watershed is called the ...
- A. source
  - B. outflow
  - C. estuary
  - D. aquifer
42. This is what makes the tidal range in the Bay of Fundy (20m+) so different than the tidal range in the Gulf of Mexico (0.5m) ...
- A. The Bay of Fundy has a wide mouth, is long and V-shaped
  - B. The Gulf of Mexico has a wide mouth passage to the ocean
  - C. The Bay of Fundy is short and narrow
  - D. The Gulf of Mexico has a wide mouth, is long and C shaped

**Complete the next 4 Numerical Response questions in the test booklet**

## Numerical Response Questions (Worth 2 marks each)

1. This illustration models the total amount of water available on Earth.

4 parts represent the Earth's water supply:



1. ice cubes
2. lemonade
3. melted water
4. lemon slice

Match each part in the model with what it represents...

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_  
Salty      Frozen      Underground      Surface

	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

2. Match the stream characteristics with its location in the illustration.



\_\_\_\_\_ meanders  
\_\_\_\_\_ rapid flow  
\_\_\_\_\_ sediment deposits  
\_\_\_\_\_ collects forming a channel

	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

3. Use this table to answer the question

City	Jan Temp	July Temp
1	-4	+22
2	-7	+18
3	-11	+17
4	-15	+18

Match the city with the information provided in the table.

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_  
Calgary      Toronto      Halifax      Edmonton

	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

4. Table of Freshwater Use (Litres/person/day)

Country	Domestic	Agricultural	Industrial
1	6	118	1
2	431	313	3136
3	110	16	424
4	129	1849	172

Identify each Country by its use of water ...

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_  
Canada      Mexico      England      Cambodia

	.	.	
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

# Fresh and Saltwater Systems Unit Test

## Answer Key

1	C	11	C	21	B	31	D	41	B
2	D	12	C	22	C	32	B	42	A
3	C	13	B	23	A	33	B	Numerical Response	
4	A	14	D	24	C	34	C		
5	B	15	D	25	B	35	A		
6	D	16	C	26	B	36	C		
7	B	17	A	27	C	37	C	1	2134
8	A	18	B	28	A	38	B	2	3241
9	A	19	A	29	C	39	D	3	3124
10	D	29	C	30	B	40	A	4	2431