

**Last Name** \_\_\_\_\_ **First name** \_\_\_\_\_ **SS No.** \_\_\_\_\_

Check to make sure that your name and SS# are coded correctly on your computer answer sheet  
Answer questions 145 on the Scantron,

True/False (A = true, B = false) 25 questions, one point each

1. The age of the solar system is about 15 billion years.
2. It is highly likely that life exists elsewhere (besides earth) in the Universe.
3. The main evidence in favor of the Big Bang theory & an expanding universe is the Red shift.
4. The Spark Chamber experiment provided evidence in favor of Panspermy.
5. The first organisms evolved on earth about 3.8 million years ago.
6. All primary production in the surface ocean is a result of photosynthesis.
7. Spontaneous generation was disproved by Louis.Pasteur
8. Reality can be defined as perception or what actually is.
9. Prokaryotes lack cell nuclei
10. Speciation occurs because of gradual change and/or punctuated equilibrium.
11. All species in nature are "fixed" and do not change.
12. 99.9% of all species that ever evolved on earth are extinct today
13. Impacts from comets, asteroids & meteorites changed the course of evolution many times over during the last 600 million years.
14. If evolution were to start all over, the same organisms would evolve again.
15. In general, terrestrial ecosystems have more trophic levels than marine ecosystems.
16. In the sea, at each trophic level, about 50% of the organic matter produced is passed up the food chain to the next trophic level.
17. Phytoplankton blooms are most likely to occur when the thermocline is deeper than the critical depth.
18. The sea is about 20 times more productive than the land.
19. The decline of reef fisheries in Hawaii is primarily due to pollution.
20. Ninety percent of the world's catch is caught in 10% of the world's oceans.
21. Overfishing is linked to overpopulation in the world
22. Coral reefs in Hawaii are generally very healthy
23. Water vapor, carbon dioxide and methane are all greenhouse gases.
24. By definition, nature pollutes
25. The tolerance range of an organism is called its carrying capacity

Multiple choice; 10 questions, pick the best answer; one point each

26. The Cambrian Explosion was caused by: a) the evolution of sexual reproduction, b) the build-up of ozone in the atmosphere, c) exponential diversification, d) all of the above
  
27. The hierarchy of the modern taxonomic system (in order) is:
  - a) Kingdom, Class, Phylum, Family, Order, Genus, Species
  - b) Phylum, Kingdom, Class, Family, Order, Genus, Species
  - c) Kingdom, Phylum, Class, Order, Family, Genus, Species
  - d) Phylum, Kingdom, Class, Order, Family, Genus, Species

28. If the evolutionary clock were to be replayed on planet earth again:  
 a) the same species would probably evolve, b) different species would probably evolve, c) human beings would probably evolve again.
29. The temperature of the earth's atmosphere is expected to increase by about \_\_\_\_\_ in the next 100 years. a) 1.8 to +10 C, b) +1.5 to +4.0 C, c) 0 C to +100 C, d) +5 C to +10 C.
30. Around a hydrothermal vent you will never find:  
 a) symbiotic bacteria, b) red-colored tube worms, c) sulfide deposits, d) a bed of kelp
31. The world annual fish harvest from the ocean is: a) about 85 million tons, b) is no longer increasing, c) taken primarily in areas of high productivity, d) all of the above
32. Most fish populations are depleted because of  
 a) over-fishing, b) pollution, c) they grow too slow, d) natural mortality.
33. Primary production is controlled by: a) upwelling, b) the concentration of nutrients, c) depth of the mixed layer, d) all of the above.
34. Terrestrial ecosystems have \_\_\_\_\_ food chains than marine ecosystems  
 a) longer and less efficient, b) shorter and more efficient, c) longer and more efficient, d) shorter and less efficient.
35. Upwelling usually: a) increases the temperature of surface waters, b) decreases productivity of surface waters, c) decreases the nutrients in surface waters, d) none of the above

Fill in questions. fill in the blank spaces with the best answer, one point each:

36. The building blocks of life are called \_\_\_\_\_ and have been produced in the laboratory in an apparatus called the \_\_\_\_\_
37. Corals are in the Phylum \_\_\_\_\_
38. The word Echinoderm, in Latin means \_\_\_\_\_
39. Upwelling zones are areas of high \_\_\_\_\_
40. Giant kelp is sometimes called a \_\_\_\_\_ species.
- 41-43. List three compensating mechanisms that occur when a fish stock is harvested and \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
44. \_\_\_\_\_ is one solution to pollution

45. The organism at the base of the food chain in a hydrothermal vent community is \_\_\_\_\_.
46. The increase in the concentration of a pollutant as it moves up the food chain is called \_\_\_\_\_.
- 47 & 48. The impact of a pollutant on a species population depends on its \_\_\_\_\_ and \_\_\_\_\_.
49. In a food chain, the feeding levels are called \_\_\_\_\_ levels.
50. The place where an organism lives is called its \_\_\_\_\_.
51. The role that an organism plays in its environment is called its \_\_\_\_\_.
52. If all the ice on earth were to melt, sea-level would rise about \_\_\_\_\_ meters.
53. The distribution pattern of abundance for most species is \_\_\_\_\_.
54. Primary production in a hydrothermal vent community is called \_\_\_\_\_.
- 55 & 56. The ocean was formed by volcanic \_\_\_\_\_ of water, and the accumulation of water from \_\_\_\_\_ hitting the earth.
57. Mutualism, is an example of symbiosis in which both species \_\_\_\_\_.
58. Tropical communities generally have \_\_\_\_\_ species than polar communities.
59. The orderly replacement of species or communities over time within ecosystems is called \_\_\_\_\_.
60. CO<sub>2</sub> during the last ice age was much \_\_\_\_\_ than it is today.

Essay questions, five points each, select three out of the four

1. Name and define 5 processes that control the evolution of species. Briefly explain their interaction.

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2. Draw a food chain in the sea with 5 trophic levels and describe each using examples of plants and animals and explain ecological efficiency.

3. With the use of a graph, describe the Schaeffer Model used to manage fish populations. Label axes, illustrate MSY, OY, and draw a cost/profit curve.

4. Write the formula for photosynthesis and list 3 things it requires.