Natural Resources Practice Midterm
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Name: Hour Date: Score:

1. As biodiversity increases in an ecosystem…
	1. Resources become more scarce
	2. Ecosystem function decreases
	3. Extinctions are more likely
	4. The ecosystem becomes healthier and more productive
2. The higher the biodiversity of an ecosystem…
	1. The more species it can support
	2. The more individuals it can support
	3. The more services it can provide
	4. All of the above are true
3. Which of the following is NOT a part of the 3 levels of biodiversity
	1. Molecular b. Genetic c. Species d. Ecosystem
4. Genetic diversity is best described as…
	1. The diversity within a species
	2. The diversity of different species
	3. The diversity of ecosystems that exist
	4. The diversity of atoms
5. Examples of ecosystem diversity include…
	1. The variety of traits within a species
	2. The variety of species within an ecosystem
	3. The variety of ecosystems on the planet
	4. All of the above
6. The the biodiversity, the likely a habitat will be affected by disturbances.
	1. Greater, More b. Lower, More
7. Which of the following is the correct formula for calculating biodiversity?
	1. Biodiversity = Number of Species/Number of Individuals
	2. Biodiversity = Number of Individuals/Number of Species
	3. Biodiversity = Number of Individuals
	4. Biodiversity = Number of Species
8. A section of a meadow has 100 individuals; there are 10 total species. What is the biodiversity score?
	1. 10/100 = 0.1 b. 100/10 = 10 c. 100 d. 10
9. An example of Nutrient Cycling in an ecosystem would include…
	1. Utilization of sunlight at all trophic levels
	2. Filtration of water as it passes through soil
	3. Pollination
	4. Conversion of N2 in the atmosphere into organic nitrogen compounds like proteins
10. An example of Energy Flow in an ecosystem would include…
	1. Utilization of sunlight at all trophic levels
	2. Filtration of water as it passes through soil
	3. Pollination
	4. Conversion of N2 in the atmosphere into organic nitrogen compounds like proteins
11. An example of Reproduction & Genetic Diversity as an ecosystem service includes:
	1. Utilization of sunlight at all trophic levels
	2. Filtration of water as it passes through soil
	3. Pollination
	4. Conversion of N2 in the atmosphere into organic nitrogen compounds like proteins

	*Use the graph to the right for the next questions*
12. According to this graph, as Biodiversity decreases, Ecosystem Function
	1. Increases
	2. Decreases
	3. Remains Unchanged
13. A Type B Ecosystem could best be described as…
	1. The type of ecosystem where losses to biodiversity are immediately detectable
	2. The type of ecosystem where losses to biodiversity are not noticeable until it is probably too late
	3. The type of ecosystem where losses to biodiversity do not affect Ecosystem Function
	4. The type of ecosystem where losses to biodiversity may actually increase Ecosystem Function
14. A Type A Ecosystem could best be described as…
	1. The type of ecosystem where losses to biodiversity are immediately detectable
	2. The type of ecosystem where losses to biodiversity are not noticeable until it is probably too late
	3. The type of ecosystem where losses to biodiversity do not affect Ecosystem Function
	4. The type of ecosystem where losses to biodiversity may actually increase Ecosystem Function
15. Prior to modern civilization, there have been major mass extinctions in geological history
	1. No b. Two c. Five d. Ten
16. The extinction shows signs of causing the most rapid loss of species in geological history.
	1. Holocene b. Cretaceous c. Devonian d. Ordovician
17. The current rate of extinction is the normal sustainable rate of extinction.
	1. About the same b. Less than c. Slightly higher than d. Over a 1000 times greater than
18. According to an article published in *The American Scientist*, three species are going extinct every
	1. Year b. Month c. Day d. Hour
19. Of the estimated 6 to 10 million living species on the planet, we have identified roughly…
	1. 1000 b. 1 million c. Half d. Almost all
20. Previous catastrophic extinctions, such as the one that wiped out the dinosaurs, took to happen.
	1. Decades b. Centuries c. Thousands of years d. Billions of years
21. Which of the following can best describe today’s rate of extinction?
	1. Lower than normal since the passage of the Endangered Species Act
	2. Roughly the same as the normal, sustainable rate of extinction
	3. Roughly the same as when the dinosaurs went extinct
	4. Faster than any known point in geological history, with half of all known species extinct in under 100 years (E. O. Wilson, 2002) as opposed to over many thousands of years with the dinosaurs.
22. What percent of large fish have disappeared in the past 50 years due to over fishing?
	1. 5% b. 30% c. 50% d. 75% e. 90%
23. What percentage of bird and mammal species are expected to be extinct in the next 200-300 years (if nothing changes)?
	1. 5% b. 30% c. 50% d. 75% e. 90%
24. Natural species are important because…
	1. One quarter of prescription medicines were developed from compounds found in living species.
	2. Newfound wild species have the potential to help us produce stronger, more productive crops
	3. Only 20 plants supply 90% of our food; each is susceptible to disease because of selective breeding
	4. All of the above
25. The value of ecosystem function and services is in the of dollars.
	1. Million b. Billions c. Trillions d. Thousands
26. As biodiversity decreases due to extinction, what happens to ecosystem function and services?
	1. They decrease b. They increase c. They’re unchanged
27. What are the four main causes of extinction today?
	1. Habitat loss, pollution, the hole in the ozone, and weakened solar radiation
	2. Habitat loss, pollution, invasive species, and overharvesting
	3. Litter, excess precipitation, invasive species, and overharvesting
	4. Litter, excess precipitation, the hole in the ozone, and weakened solar radiation
28. A habitat is…
	1. Any landscape that provides some of the needs of a species.
	2. Any place where we find vegetation such as trees or grass.
	3. The environment in which the specific needs of a species are met.
	4. All of the above.
29. Why does habitat loss represent one of the greatest causes of extinction?
	1. Living organisms have evolved over millions of years to have highly specific needs that are met only by their specific habitats.
	2. If a habitat is changed, it can no longer provide the conditions necessary for species to live.
	3. Without a habitat, a species cannot live under natural conditions.
	4. All of the above.
30. The maximum population that a habitat can sustainably support is called a…
	1. Carrying Capacity b. Community c. Ecosystem d. Niche
31. The interaction of living and non-living species in an area is called…
	1. Carrying Capacity b. Community c. Ecosystem d. Niche
32. The specific role a species plays in its habitat is called…
	1. Carrying Capacity b. Community c. Ecosystem d. Niche
33. The interactions of living species in a habitat is a…
	1. Carrying Capacity b. Community c. Ecosystem d. Niche
34. This niche is when species interact to the benefit of all involved.
	1. Competition b. Predation/Parasitism c. Mutualism d. Symbiosis e. Commensalism
35. This niche is when two species struggle to acquire the same resource.
	1. Competition b. Predation/Parasitism c. Mutualism d. Symbiosis e. Commensalism
36. This niche is when one species gains resources at the expense of another species.
	1. Competition b. Predation/Parasitism c. Mutualism d. Symbiosis e. Commensalism
37. This niche is when one species benefits without affecting another species.
	1. Competition b. Predation/Parasitism c. Mutualism d. Symbiosis e. Commensalism
38. This niche is where two species cooperate to the extent that they physically cannot survive without each other.
	1. Competition b. Predation/Parasitism c. Mutualism d. Symbiosis e. Commensalism
39. Which of the following best describes amensalism?
	1. When one species benefits another species without benefiting itself.
	2. When one species harms another species without benefiting itself.
	3. When one species benefits another species without harming itself.
40. Which of the following best summarizes the Competition Exclusion Principle?
	1. If two species occupy the same niche at the same time, they will cooperate to use the resources.
	2. If two species occupy the same niche at the same time, one species will eliminate the other over time.
	3. If two species occupy the same nice at the same time, both will go extinct.
	4. All of the above are accurate summaries.
41. A species with a very narrow niche is called a…
	1. Habitat generalist b. Habitat specialist c. Predator d. Threatened or endangered species
42. As habitats become , the impact of the Competitive Exclusion Principle
	1. Smaller; Increases b. Smaller; Decreases; c. Larger; Increases
43. How do invasive species affect the Competitive Exclusion Principle?
	1. Invasive species reduce competition within a niche, providing more ecosystem services to native species.
	2. Invasive species expand the number of niches in an ecosystem.
	3. Invasive species increase the competition within a niche, making it harder to acquire resources.
	4. All of the above.
44. The process in which a habitat undergoes natural, slow change is called…
	1. Succession b. Disturbance c. Resilience
45. The ability of a habitat to overcome threats and return to a normal state is known as…
	1. Succession b. Disturbance c. Resilience
46. When the normal function and transition of a habitat is threatened by an outside force, this is called…
	1. Succession b. Disturbance c. Resilience
47. How do human-caused disturbances differ from natural disturbances?
	1. They do not differ; both cause extensive damage and threaten biodiversity
	2. Natural disturbances tend to be rapid and temporary; human disturbances tend to have a longer impact.
	3. Human disturbances occur on a much smaller scale than natural disturbances
	4. Human disturbances are rare while natural disturbances occur much more often.
48. The the biodiversity of a habitat, the the resilience of that habitat.
	1. Greater; Greater b. Greater; Lower c. Lower; Greater
49. What is habitat fragmentation?
	1. When a habitat experiences a selective harvest of timber.
	2. When a habitat experiences a disturbance such as pollution or invasive species.
	3. When a habitat is broken into multiple smaller habitats that are isolated from each other.
	4. All of the above.
50. What is the difference between patchiness and edge?
	1. Patchiness is the amount of border a habitat has while edge is how broken up a habitat is.
	2. Edge is the amount of border a habitat has while patchiness is how broken up a habitat is.
	3. Patchiness is another word for fragmentation; edge is a result of the fragmentation.
	4. Edge is another word for fragmentation; patchiness is a result of the fragmentation.
51. Which of the following best summarizes the **methods** of the Gonzalez experiment of 1998?
	1. Large tracts of forests were clear-cut to measure the impact on biodiversity.
	2. Rocks were used in place of vegetation to simulate fragmentation.
	3. The moss on rocks, which serves as habitat for macroinvertebrates, was selectively removed in four different ways to serve as a model for all kinds of habitat fragmentation.
	4. Some guy named Gonzalez started throwing rocks at his friends to see how mad they’d get.
52. Which of the following best summarizes the **findings** of the Gonzalez experiment of 1998?
	1. Even if the same total area of a habitat remains, if that habitat is broken up, biodiversity will drop significantly.
	2. Corridors that connect isolated pieces of habitat can lessen the impact of fragmentation on biodiversity.
	3. Even a small break in a corridor will mostly eliminate the effectiveness of that corridor.
	4. All of the above.
53. The the size of the habitat, and the the biodiversity, the the habitat will be.
	1. Greater; Lower; Healthier b. Smaller; Lower; Healthier c. Greater; Higher; Healthier
54. The main causes of habitat fragmentation include…
	1. Succession, natural disturbances, pollution, and hunting.
	2. Road building, succession, natural disturbances, and conversion.
	3. Human development, succession, natural disturbances, and deforestation.
	4. Human development, road building, deforestation, and conversion.
55. Which of the following is NOT an outcome of fragmentation?
	1. Decreased populations due to lowered carrying capacities.
	2. Inbreeding and losses of genetic diversity.
	3. Increased predation, parasitism, and invasive species.
	4. Loss of specialist species with narrow niches.
	5. Increased species diversity due to evolution resulting from new selection pressures.
56. *All* pollution can be summarized in one word:
	1. Toxicity b. Chemicals c. Litter d. Waste
57. This kind of pollution occurs when the pollution come from many sources.
	1. Litter b. Runoff c. Nonpoint Pollution d. Point Pollution
58. This kind of pollution occurs when the pollution comes from one source.
	1. Litter b. Runoff c. Nonpoint Pollution d. Point Pollution
59. This kind of pollution involves anything that is a gas and is not nitrogen, oxygen, or water vapor.
	1. Water pollution b. Air pollution c. Land pollution d. Noise pollution e. Light pollution
60. This kind of pollution can affect the migration and feeding patterns of wildlife due changes in their detection of night and day and/or direction.
	1. Water pollution b. Air pollution c. Land pollution d. Noise pollution e. Light pollution
61. Much of this kind of pollution is comprised of household garbage and industrial waste.
	1. Water pollution b. Air pollution c. Land pollution d. Noise pollution e. Light pollution
62. This kind of pollution cannot be seen or smelled but can upset the navigation of aquatic species and cause high blood pressure and stress-related disorders in humans.
	1. Water pollution b. Air pollution c. Land pollution d. Noise pollution e. Light pollution
63. The Dead Zone in the Gulf of Mexico is the result of this kind of pollution.
	1. Water pollution b. Air pollution c. Land pollution d. Noise pollution e. Light pollution
64. The Cuyahoga River in Cleveland was important in the history of addressing pollution because it…
	1. Dried up b. Reversed its current c. Caught fire d. Lost all living species
65. The Great Smog of 1952 was one of the most deadly and notable examples of pollution.
	1. Water b. Land c. Air d. Light e. Noise
66. *Silent Spring*, by Rachel Carson, was a detailed description of the impact of pollutants on…
	1. Air b. Water c. Wildlife e. Soil
67. How did DDT specifically cause bald eagle populations to drop?
	1. It weakened their bones b. It made them infertile c. It weakened their egg shells d. None of these
68. Love Canal was a tragic example of the impact of on human populations.
	1. Water Pollution b. Industrial Waste Disposal c. Air Pollution d. Noise pollution
69. This piece of legislation required the testing of pesticides before approval for sale.
	1. Clean Air Act ‘63 b. Toxic Substance Control Act c. Clean Air Act ’70 d. Pesticides Control Act
70. This piece of legislation established federal air quality standards.
	1. Clean Air Act ‘63 b. Toxic Substance Control Act c. Clean Air Act ’70 d. Pesticides Control Act
71. This piece of legislation made clean air a protectable resource.
	1. Clean Air Act ‘63 b. Toxic Substance Control Act c. Clean Air Act ’70 d. Pesticides Control Act
72. This piece of federal legislation regulated toxic substances
	1. Clean Air Act ‘63 b. Toxic Substance Control Act c. Clean Air Act ’70 d. Pesticides Control Act
73. This piece of federal legislation created federal action to restore US waterways.
	1. Clean Water Act ’64 b. Ocean Dumping Act ’72 c. Safe Drinking Water Act ’74
74. This piece of federal legislation created federal standards for consumable water.
	1. Clean Water Act ’64 b. Ocean Dumping Act ’72 c. Safe Drinking Water Act ’74
75. This piece of federal legislation lessened the pollution from raw sewage in coastal cities.
	1. Clean Water Act ’64 b. Ocean Dumping Act ’72 c. Safe Drinking Water Act ’74
76. This piece of federal legislation established the Superfund.
	1. Clean Water Act ‘64
	2. Toxic Substances Control Act ‘76
	3. Resource Conservation and Recovery Act ‘76
	4. The Comprehensive Environmental Response, Compensation, and Liability Act ‘80
77. What is the “Super Fund”?
	1. A federal program that uses tax dollars to clean up a site instead of the company.
	2. A federal program that lets polluting companies use taxpayer money to harm the environment.
	3. A federal program that uses industry money to pay for government-caused pollution.
	4. The federal program to ensure the clean up the industrial waste sites without cost to taxpayers.
78. This pollutant is found in many ores; it is widely used because it is dense, malleable, and does not corrode. It can also bioaccumulate in the body, leading to miscarriage, stillbirth, low birth weights, premature births and birth defects.
	1. Mercury b. Lead c. DDT d. Chromium-6 e. Carbon Dioxide
79. This pollutant is a greenhouse gas, and has nearly doubled in concentration as a result of the Industrial Revolution.
	1. Mercury b. Lead c. DDT d. Chromium-6 e. Carbon Dioxide
80. This carcinogen is used for industrial processes to make steel, dyes, plastics, and leather. It can cause lung cancer when inhaled.
	1. Mercury b. Lead c. DDT d. Chromium-6 e. Carbon Dioxide
81. This pollutant is largely from emissions from burning fossil fuels and can biomagnify. It is known to cause kidney failure, immune system impairment, brain & spinal cord damage, and can alter the function of enzymes and DNA.
	1. Mercury b. Lead c. DDT d. Chromium-6 e. Carbon Dioxide
82. This pollutant, now banned in the US, was a widely-used pesticide that could biomagnify and was a major cause in the near-extinction of the bald eagle.
	1. Mercury b. Lead c. DDT d. Chromium-6 e. Carbon Dioxide
83. If a pollutant can biomagnify, this means that…
	1. It will increase in concentration in water or air once emitted.
	2. It will increase in concentration as it moves up the food chain to top predators.
	3. It will decrease in concentration in water or air once emitted.
	4. It will decrease in concentration as it moves up the food chain to top predators.
84. Which of the following would be at MOST risk to a pollutant that can biomagnify?
	1. Zooplankton b. Herbivores such as deer c. Bears, sharks, and other predators d. All of the above
85. Which of the following is NOT needed for a substance to biomagnify?
	1. Fat-soluble b. Long-lived c. Mobile d. Synthetic/man-made
86. Eutrophication is the process in which…
	1. HIGH levels of nutrients in the water cause oxygen levels to drop.
	2. LOW levels of nutrients in the water cause oxygen levels to drop.
	3. HIGH levels of oxygen in the water cause nutrient levels to drop.
	4. LOW levels of oxygen in the water cause nutrient levels to drop

*For each of the following four questions, only one option is directly caused by the item in the question.*

1. High nutrient levels in water cause this.
	1. Elimination of photosynthesis beneath the water.
	2. Growth of thick algae mats on the water’s surface.
	3. Drops in dissolved oxygen levels in the water.
	4. Clear water levels and cool water temperatures.
2. Growth of thick algae mats on the water surface directly causes this.
	1. Elimination of photosynthesis beneath the water.
	2. Growth of thick algae mats on the water’s surface.
	3. Drops in dissolved oxygen levels in the water.
	4. Clear water levels and cool water temperatures.
3. Increased rates of decomposition in the water directly cause this.
	1. Elimination of photosynthesis beneath the water.
	2. Growth of thick algae mats on the water’s surface.
	3. Drops in dissolved oxygen levels in the water.
	4. Clear water levels and cool water temperatures.
4. Elimination of underwater photosynthesis causes this.
	1. Elimination of photosynthesis beneath the water.
	2. Growth of thick algae mats on the water’s surface.
	3. Drops in dissolved oxygen levels in the water.
	4. Clear water levels and cool water temperatures.
5. Which of the following would be an accurate description of thermal pollution?
	1. The increase in water temperature due to human activity
	2. The decrease in water temperature due to human activity
	3. The reduction of dissolved oxygen in a body of water due to high nutrient levels
	4. When fish start wearing bulky winter clothes that really aren’t flattering
6. How are dissolved oxygen and water temperature related?
	1. The colder the water, the lower the dissolved oxygen
	2. The warmer the water, the lower the dissolved oxygen
	3. Oxygen levels peak at room temperature but are lower at higher or lower temperatures
	4. Dissolved oxygen and water temperature are unrelated
7. How does warm water affect dissolved oxygen levels?
	1. As the water warms, oxygen levels increase because of increased rates of photosynthesis
	2. As the water warms, its ability to hold gases like oxygen is reduced.
	3. As the water warms, rates of decomposition increase, lowering oxygen rates.
	4. Both B and C are correct
8. Nitrates are most commonly introduced into aquatic ecosystems from what sources?
	1. Manure, sewage, and poorly constructed feedlots
	2. Industrial waste, leaky landfills, and electronics
	3. Water used for cooling factory machines
	4. Parking lots and asphalt roadways
9. High levels of nitrates in a waterway causes…
	1. Eutrophication
	2. Biomagnification
	3. Thermal pollution
	4. Acid rain
10. Methemoglobinemia results from high nitrate levels; methemoglobinemia causes…
	1. Birth defects and growth disorders
	2. Pancreatic failure
	3. The inability of red blood cells to carry oxygen
	4. Weakened, brittle bones
11. High levels of phosphates in a waterway causes…
	1. Eutrophication b. Biomagnification c. Thermal pollution d. Acid rain
12. Heavy metals are ….
	1. Always toxic to living organisms
	2. Needed by organisms in trace amounts
	3. Needed in large amounts by organisms
	4. Unlikely to cause environmental problems
13. High levels of lead in an organism are likely to result in what problems?
	1. Bioaccumulation leading to liver and kidney failure
	2. Replacement of calcium in the bones
	3. Displacement of oxygen on red blood cells
	4. High levels of this substance are unlikely to cause physical problems in an organism.
14. High levels of mercury in an organism are likely to result in what problems?
	1. Bioaccumulation leading to liver and kidney failure
	2. Replacement of calcium in the bones
	3. Displacement of oxygen on red blood cells
	4. High levels of this substance are unlikely to cause physical problems in an organism.
15. Macroinvertebrates are…
	1. Small fish b. Single-celled aquatic organisms c. Aquatic bugs d. Predator fish
16. Macroinvertebrates are advantageous for indicating water quality because…
	1. They can help us determine the exact cause of water pollution problems
	2. They change color when the water is polluted
	3. They are always found at the same amounts in every aquatic habitat
	4. They can provide information about the long-term health of an aquatic habitat

***Stream X*** *has Riffle Beetles, Damselflies, Fingernail Clams, Craneflies, Leeches, and Sowbugs****Stream Y*** *has Aquatic Earthworms, Flat-tailed Maggots, Leeches, Sowbugs, and Snails****Stream Z*** *has Freshwater Clams, Water Pennies, Dragonflies, Gill Snails, and Mayflies*

*Which stream is healthiest?*

1. a. Stream X b. Stream Y c. Stream Z d. You cannot tell from this information
2. pH is the measure of…
	1. Hydroxide ion concentrations
	2. The acidity of a substances
	3. How basic a substance is
	4. All of the above are true
3. Significant changes to the pH of a body of water indicates…
	1. Thermal pollution
	2. Eutrophication
	3. That contaminants have been introduced
	4. Nothing at all
4. Acid rain is caused by…
	1. Nitrates and phosphates
	2. Temperature change to a body of water
	3. Heavy metals
	4. Exhaust from automobiles and power plants
5. How does acid rain affect an ecosystem?
	1. It leaches nutrients from the soil, harms the tissue of living organisms, and can cause the toxic buildup of metals in a waterway
	2. It lowers dissolved oxygen
	3. It heats up a body of water.
	4. It causes an overgrowth of algae.