

Science 1206
Mid-term *Review Assignment*

Jens-Haven Memorial
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Name:

Multiple Choice: /40

Diagrams: /10

Extended Response: /44

Total: /94

Part A: Multiple Choice. Circle the best answer. (50 %)

1. Which of the following best describes sustainable development?
 - A) Using resources while ensuring they are abiotic
 - B) Using resources while ensuring they are biotic
 - C) Using resources while ensuring they can be used by the current generation.
 - D) Using resources while ensuring they can be used by future generations.

2. Which of the following is seen as most controversial?
 - A) Clear cutting forests
 - B) Residential forest usage
 - C) Replanting forests
 - D) Strip cutting forests

3. An ecosystem is a self sustaining community of which of the following?
 - A) Abiotic factors only
 - B) Abiotic and biotic factors
 - C) Biotic factors only
 - D) Biotic and organic factors

4. Which process describes one ecosystem turning into another?
 - A) Competition
 - B) Niche
 - C) Recession
 - D) Succession

5. What is a climax community?
 - A) The predominant community of biotic factors in an area.
 - B) The predominant niche of a community
 - C) The predominant population of an area
 - D) The predominant type of competition in an area

6. Which of the following does **NOT** cause a sudden change to ecosystems?
 - A) Human intervention
 - B) Melting glaciers
 - C) Meteorite impact
 - D) Volcanic eruption

7. Which diagram represents the dry mass of all the organisms in an area?
 - A) Pyramid of biomass
 - B) Pyramid of energy
 - C) Pyramid of numbers
 - D) Pyramid of matter

8. About how much energy is passed on from one trophic level to the next?
 - A) 3%
 - B) 10%
 - C) 33%
 - D) 60%

9. What is the difference in a food web and a food chain?
 - A) Food chains are only for terrestrial organisms
 - B) Food chains show primary producers
 - C) Food webs are less complex
 - D) Food webs show more interactions between organisms

10. A group of organisms of the same species that live and interact together is referred to as a(n):
 - A) biome
 - B) community
 - C) ecosystem
 - D) population

11. Why are quaternary consumers rare?

- A) They are all endangered
- B) They are only in warm climates
- C) There is too little intraspecific competition
- D) There is not much energy available for them.

12. Why is oxygen very important to most organisms?

- A) For cellular respiration
- B) For development
- C) For photosynthesis
- D) For growth

13. What are organisms that break down organic matter, returning nutrients to the ecosystem for further growth, classified as?

- A) scavengers
- B) decomposers
- C) saprobes
- D) producers

14. What is eutrophication?

- A) Increasing amounts of nutrients in ponds, which causes increased bacteria growth
- B) Increasing amounts of oxygen in ponds, which causes increased algae growth
- C) Increasing amounts of pesticides in ponds, which causes decreased algae growth
- D) Increasing amounts of pesticides in ponds, which causes decreased bacteria growth

15. An organism that cannot produce its own food from basic nutrients is called a(n):

- A) autotroph
- B) decomposer
- C) energy source
- D) heterotroph

16. Use the food chain below to answer the next question.

grass -----> beetle-----> spider -----> sparrow -----> hawk

Which population should have the largest biomass?

- A) beetle
- B) sparrow
- C) spider
- D) hawk

17. Which biome has the greatest biodiversity in Canada?

- A) tundra
- B) boreal forest
- C) temperate deciduous forest
- D) grasslands

18. Which is the most fragile biome in Canada?

- A) tundra
- B) boreal forest
- C) temperate deciduous forest
- D) grasslands

19. The practice of growing monocultures of plants is:

- A) the best way of achieving a sustainable ecosystem
- B) the best way to maintain a sustainable balance of nutrients without adding fertilizers
- C) a threat to sustainability because it causes pest populations to increase
- D) a threat to sustainability because it is too expensive

20. Which of the following has the highest concentration in the atmosphere?
- A) carbon
 - B) hydrogen
 - C) nitrogen
 - D) oxygen
21. What is the term for the bacteria that convert nitrogen gas to a solid?
- A) nitrogen-fixing
 - B) nitrate-fixing
 - C) nitrite-fixing
 - D) denitrifying
22. Spring runoff of nitrogen and phosphate in fertilizers:
- A) helps improve the quality of waterways
 - B) promotes the growth of excess amounts of algae
 - C) provides more oxygen for fish and other aquatic organisms
 - D) is generally beneficial to the environment
23. Biodiversity describes differences in the:
- A) abiotic environment
 - B) variety of organisms
 - C) sizes of populations
 - D) rates of reproduction
24. Integrated Pest Management refers to the control of pests through the use of:
- A) predator organisms
 - B) crop diversity
 - C) limited pesticide use
 - D) all of these
25. Which best describes global warming?
- A) a process that naturally occurs, making summers longer
 - B) a process that naturally makes the Earth warmer and is being increased by human activity
 - C) a process that occurs as a result of human activity that makes ice melt
 - D) a process that occurs as a result of human activity that makes the Earth warmer
26. How does carbon dioxide affect global warming?
- A) Causes it to decrease by allowing heat to escape the atmosphere
 - B) Causes it to decrease by reflecting light from the sun
 - C) Causes it to increase by preventing evaporation
 - D) Causes it to increase by trapping heat energy from the sun
27. What is the major concern about using land for agriculture?
- A) Cows producing greenhouse gases
 - B) Cost of fertilizer
 - C) Destruction of natural ecosystems
 - D) The introduction of non-native species
28. If you were to ship a bacteria that causes disease in humans, which symbol should be on the packaging?
- A) Biohazardous (infectious) materials
 - B) Compressed gas
 - C) Materials causing other toxic effects
 - D) Oxidizing materials

29. What does the following symbol mean?



- A) Dangerously reactive materials
- B) Flammable and combustible materials
- C) Materials causing other toxic effects
- D) Oxidizing materials

30. Which term refers to a pure substance which is made up of two or more different elements in fixed proportions?

- A) Atom
- B) Compound
- C) Element
- D) Molecule

31. What is the nucleus of an atom composed of?

- A) Electrons and neutrons
- B) Neutrons and positrons
- C) Protons and electrons
- D) Protons and neutrons

32. What types of atoms will form a molecular compound?

- A) two or more metals
- B) a metal and a nonmetal
- C) two or more nonmetals
- D) an acid and a base

33. What is the charge on a strontium ion?

- A) 1+
- B) 1-
- C) 2+
- D) 2-

34. Which of the following is a diatomic gas?

- A) helium
- B) argon
- C) phosphorus
- D) oxygen

35. An ion has 18 electrons and 19 protons. Which is the correct symbol for this ion?

- A) Ar⁺
- B) Ar⁻
- C) K⁺
- D) K⁻

36. An **ion**:

- A) has a different number of electrons and protons
- B) has a net charge of zero
- C) has the same number of electrons as a noble gas
- D) is more stable than an atom

37. Analysis of an atom indicates that there are three electrons in the third energy level. The element is:

- A) Al
- B) N
- C) Na
- D) P

38. Which is a **nonmetal**?

- A) Hg
- B) Si
- C) Te
- D) Ti

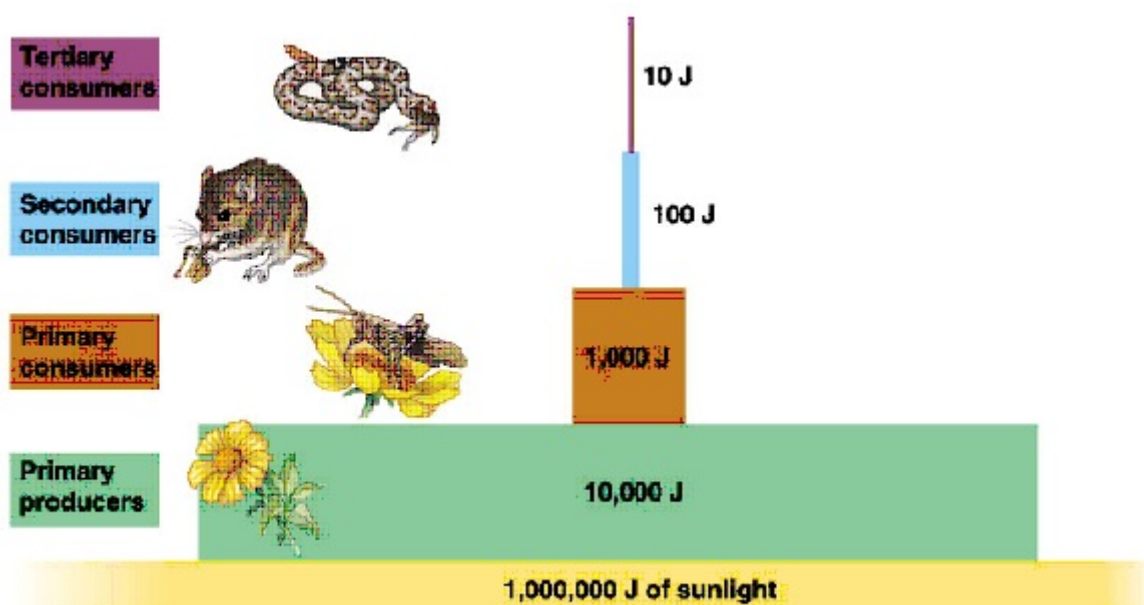
39. What is the correct name for H_2O_2 ?

- A) Dihydrogen dioxide
- B) Heavy water
- C) hydrogen dioxide
- D) Hydrogen peroxide

40. What is the correct name for Cl_4 ?

- A) carbon tetraiodide
- B) carbon tetraiodine
- C) monocarbon tetraiodie
- D) monocarbon tetraiodine

Part B: Diagrams. Answer the following questions based on these diagrams (10%)



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b. Which organism could help decrease global warming? (0.5%) _____

c. How? (0.5 %) _____

c. Modify this diagram by introducing two more organisms to create a food web (2%).

Location of DDD	Concentration (ppm)
Water	0.02
Plankton	5.3
Small fish	10
Predatory fish (pike)	1500
Predatory bird (grebe)	1600

2. The insecticide DDD was used in amounts not considered harmful in Clear Lake, California to control gnats. Examine the table above and answer the following questions.

a) Even though the concentration of DDD added to the water was very low, describe what happened as it entered the various organisms in the food chain. (2%)

(b) Explain how the grebe could have such a high concentration of DDD in its body. (2%)

(c) In your opinion is there any concentration of DDD that would be safe to use in the lake? Explain your answer. (1%)

Part C: Extended response. Answer any the following questions in the space provided.
(40 %)

1. Explain how photosynthesis and cellular respiration are complementary. (5%)

2. a) Explain how two carnivores, like the red fox and black bear, can share the same habitat, but not directly compete with each other (3%).

b) Distinguish between interspecific and intraspecific competition. Provide an example to clarify your answer (2%)

3. List and explain five abiotic factors which impact ecosystem. Discuss factors which may affect these abiotic factors. (5%)

4. List and describe four biomes we discussed in class. Include several important abiotic and biotic factors for each. (5%)

5. a) Nutrients are continuously recycled. Discuss **either** the carbon cycle or the nitrogen cycle, including why they are so important. (4%)

b) Explain one reason why the **cycling of matter** is so **slow** in northern Labrador. (1%)

6. Draw Bohr diagrams for the following atoms: (3%)

- a) He
- b) Na
- c) Fe

7. Draw energy level diagrams for the following atoms: (3%)

- a) Na
- b) Ca
- c) Kr^+

8. Fill in the following table with the correct name or symbols. (10%)

Symbols	Name
	Zinc metal
	Copper (I) Sulfide
	Ammonia
	Carbon tetraiodide
	Magnesium carbonate
NO ₂	
CaCO ₃	
Cu(SO ₄)•5H ₂ O	
NH ₄ OH	
S ₈	

9. Fill in the correct **reaction type**. (3 points)

