

HWR 201: Correspondence  
MIDTERM EXAM

CLOSED BOOK (40 pts)

1. Typhoid fever, dysentery, cholera, and infectious hepatitis are examples of:
  - a) Insect-borne diseases
  - b) Non-infectious diseases
  - c) Rodent-borne diseases
  - d) Waterborne diseases
  
2. Two basic principles of ecology are:
  - a) Conservation of energy and continuity of flow
  - b) One-way flow of energy and the circulation of materials
  - c) Biotic and abiotic components
  - d) Photosynthesis and respiration
  
3. Plants that have the unique ability to convert carbon dioxide, water, and some basic nutrients into organic compounds that store the sun's energy are referred to as:
  - a) Herbivores
  - b) Heterotrophs
  - c) Omnivores
  - d) Autotrophs
  
4. Two heavy metals that are frequently associated with noninfectious disease are:
  - a) DDT and PCB
  - b) Nitrogen oxides and sulfur dioxide
  - c) Lead and mercury
  - d) Selenium and hydrogen
  
5. Chemicals or compounds capable of causing cancer are called:
  - a) Biodegradable
  - b) Carcinogenic
  - c) Catalysts
  - d) Septic

6. An important principle that always applies to hydrostatic pressure in water is:
- a) Pressure is only a function of the velocity of the water
  - b) Pressure is water tends to act only in a single direction
  - c) Pressure tends to decrease with depth
  - d) Pressure depends only on the depth of water above a point
7. Hydrostatic pressure can be measured by
- a) A Parshall flume
  - b) A piezometer tube
  - c) A Venturi meter
  - d) A sharp-crested weir
8. In Manning's Equation, "n" is a coefficient that describes:
- a) The openness of the channel
  - b) The roughness of the channel bed
  - c) The slope of the channel bed
  - d) The wetted perimeter of the channel
9. The flow rate of discharge of a stream has units of:
- a)  $L/T$
  - b)  $L^2/T^2$
  - c)  $L/T^3$
  - d)  $L^3/T$
10. The process through which water is used by vegetation is called:
- a) transpiration
  - b) albedo
  - c) intensity
  - d) infiltration
11. A drainage divide:
- a) is a ridge separating two different watersheds
  - b) is where a river splits into two tributaries
  - c) is where rainfall on the land surface splits into surface and ground water drainages
  - d) parallels topographic contours

12. A plot of discharge versus time is called a:

- a) stage-discharge relationship
- b) a hydrograph
- c) a histogram
- d) a rating curve

13. A rating curve can be used to determine:

- a) the intensity of a storm
- b) curve number of the land surface
- c) the stage of a stream
- d) the slope of a stream

14. The following equation can be used to determine the flow rate of water in an open channel:

- a) Darcy's Law
- b) Rational Formula
- c) Manning's Equation
- d) Mass-balance equation

15. The time span between identical storms is referred to as:

- a) the intensity of a particular storm
- b) the recurrence interval or return period of a storm
- c) the 100-year storm
- d) the storm duration

16. Which of the following is **NOT TRUE** about a water table:

- a) it is the boundary between the saturated and unsaturated zone
- b) it can intersect the land surface
- c) it forms a cone of depression around a well when it is pumped
- d) it stays in the same position: it never moves up or down

17. An aquifer that is “sandwiched” between two impermeable layers that block the vertical flow of water and cause the water to be under pressure is called a:
- a) potentiometric surface
  - b) recharge area
  - c) confined or artesian aquifer
  - d) unconfined aquifer
18. Which soil type probably has the lowest permeability but a large porosity?
- A) Sand
  - B) Silt
  - C) Clay
  - D) Gravel
19. Darcy’s Law:
- a) Can be used to determine the velocity of groundwater.
  - b) Can be used to determine the discharge, or flow, in a stream.
  - c) Cannot be used if the soil is made of silt.
  - d) States that groundwater flows alongside surface water.
20. A triangular classification chart is used to:
- a) Identify the pH of water
  - b) Determine soil classification based on sand-silt-clay percentages
  - c) Measure the BOD of water
  - d) Estimate the type of minerals present in soil types
21. Which of the following is a true statement about colloids?
- a) Colloids are ions that are dissolved in water.
  - b) If water is left to stand still for a long time, colloids will settle to the bottom.
  - c) Colloids allow light to go through them.
  - d) Colloids are extremely fine particles that stay suspended in water and do not usually get removed by a filter.

22. If water is "hard", it means that:

- a) It is in the form of ice.
- b) It is difficult to make it clean.
- c) It contains a lot of calcium and magnesium
- d) It has a high pH.

23. If a sample of groundwater has a pH of 8.5, one can conclude that:

- a) it is acidic
- b) it is basic
- c) it has a high hardness
- d) it has a high TDS

24. Dissolved oxygen (DO) is frequently a measure of water quality. Which statement is FALSE?

- a) The higher the concentration of DO, the better the water quality.
- b) Fish prefer very low values of DO
- c) Bacteria and other organisms consume DO as they metabolize organic material.
- d) As temperature increases, DO decreases.

25. What does a BOD test tell you about water?

- a) It gives a measure of how much oxygen microbes need in order to break down the sewage in the water.
- b) It tells you the number of microbes in the water.
- c) It gives you a measure of how viscous and thick the water is.
- d) It measures the strength of the odor of the sewage in the water.

26. If coliform bacteria are found in water, it is an indication

- a) That there is thermal pollution.
- b) That there may be carcinogens in the water.
- c) There may be human sewage in the water.
- d) There is definitely human sewage in the water.