



6. Which of the following types of behaviour describes the way that mice find their way through mazes?
- a) Habituation
  - b) Imprinting
  - c) Reasoning
  - d) Trial and error
7. A student using a light microscope observes a cell and correctly decides that it is a plant cell because
- a) ribosomes are visible
  - b) an endoplasmic reticulum can be seen
  - c) a cell membrane is present
  - d) it has a large central vacuole
8. The condition in which there are barriers to successful interbreeding between individuals of different species in the same community is referred to as
- a) latent variations
  - b) sterility
  - c) structural differences
  - d) reproductive isolation
9. Which of the following best describes the parents in a testcross?
- a) One individual has the dominant phenotype and the other has the recessive phenotype.
  - b) Both individuals are heterozygous
  - c) Both individuals have the dominant phenotype.
  - d) Both individuals have the recessive phenotype.
10. Members of which of the following are the major primary producers in the marine ecosystem?
- a) Yeasts
  - b) Sponges
  - c) Sporozoans
  - d) Diatoms
11. In sheep, eye color is controlled by a single gene with two alleles. When a homozygous brown-eyed sheep is crossed with a homozygous green-eyed sheep, blue-eyed offspring are produced. If the blue-eyed sheep are mated with each other, what percent of their offspring will most likely have brown eyes?
- a) 0%
  - b) 25%
  - c) 50%
  - d) 75%

12. Gas exchange in all living organisms requires
- a) gills
  - b) lungs
  - c) tracheoles
  - d) moist membranes
13. Which of the following best supports the statement that mitochondria are descendants of endosymbiotic bacteria-like cells?
- a) Mitochondrial and bacteria possess similar ribosomes and DNA.
  - b) Mitochondria and bacteria possess similar nuclei.
  - c) Glycolysis occurs in both mitochondria and bacteria.
  - d) Both mitochondria and bacteria have microtubules.
14. Which of the following best characterizes the reaction represented the following?
- $$A + B + \text{energy} \rightarrow AB$$
- a) Hydrolysis
  - b) Catabolism
  - c) Oxidation-reaction
  - d) Endergonic reaction
15. Which of the following occurs during mitosis but not during meiosis I?
- a) The chromosomes are pulled to opposite poles of the spindle apparatus.
  - b) The chromatids of each chromosome are separated.
  - c) The nuclear envelope breaks down.
  - d) Both synapsis and crossing-over take place.
16. Oxygen consumption can be used as a measure of metabolic rate because of oxygen is
- a) Necessary for ATP synthesis by oxidative phosphorylation
  - b) Necessary to replenish glycogen levels
  - c) Necessary for fermentation to take place
  - d) Required by all living organisms
17. Membranes are components of all of the following EXCEPT a
- a) Microtubule
  - b) Nucleus
  - c) Golgi apparatus
  - d) Mitochondrion



23. Which of the following is primarily responsible for cell elongation, gravitropism, and apical dominance in plants?
- a) Auxin  
b) Gibberellin  
c) Cytokinin  
d) Phytochrome
24. A large stand of aspen trees may be a group of genetically identical individuals produced by vegetative reproduction. Such a collection of individuals is called a
- a) Family  
b) Hybrid  
c) Clone  
d) Genus
25. Which of the following groups contains prokaryotic organisms capable of surviving the greatest extremes in temperature or salt concentration?
- a) Protista  
b) Archaeobacteria  
c) Plantae  
d) Fungi
26. Which of the following is LEAST likely to result in a release of epinephrine (adrenaline) from the adrenal glands?
- a) Competing in an athletic event  
b) Going out on a first date  
c) Falling asleep during a lecture  
d) Swimming in a very cold pool
27. In peas the trait for tall plants is dominant ( $T$ ) and the trait for short plants is recessive ( $t$ ). The trait for yellow seed color is dominant ( $Y$ ) and the trait for green seed color is recessive ( $y$ ). A cross between two plants results in 296 tall yellow plants and 104 tall green plants. Which of the following are most likely to be the genotypes of the parents?
- a)  $TTYy \times TTYy$   
b)  $TtYy \times TtYy$   
c)  $TtYy \times TtYy$   
d)  $TtYy \times TTYy$
28. Which of the following is best observed by using a compound light microscope?
- a) A eukaryotic cell  
b) A virus  
c) A DNA sequence  
d) The inner structure of a mitochondrion