***Genetics, 6e* (Brooker)**

**Chapter 1 Overview of Genetics**

1) The basic unit of heredity is the \_\_\_\_\_\_\_\_.

A) individual

B) gene

C) macromolecule

D) trait

E) none of the answers are correct

2) A variation of a gene is called a(n) \_\_\_\_\_\_\_\_.

A) species

B) morph

C) genome

D) allele

E) proteome

3) Which of the following acts to accelerate chemical reactions in a cell?

A) Nucleic acids

B) Lipids

C) Carbohydrates

D) Enzymes

E) None of the answers are correct

4) The building blocks of DNA are the \_\_\_\_\_\_\_\_.

A) amino acids

B) carbohydrates

C) enzymes

D) nucleotides

E) lipids

5) If a carbohydrate is going to be broken down for energy, which of the following molecules would be directly involved in the breakdown?

A) Catabolic enzymes

B) Nucleotides

C) Anabolic enzymes

D) Lipids

E) Chromosomes

6) RNA is formed by the process of \_\_\_\_\_\_\_\_.

A) transcription

B) translation

C) both transcription and translation

D) None of the answers are correct

7) A characteristic that an organism displays is called \_\_\_\_\_\_\_\_.

A) a gene

B) a chromosome

C) DNA

D) gene expression

E) a trait

8) If a geneticist is studying the prevalence of a trait in a species, they are at the \_\_\_\_\_\_\_\_ level of study.

A) population

B) organismal

C) cellular

D) molecular

9) The study of the processes of transcription and translation is at the \_\_\_\_\_\_\_\_ level of biological organization.

A) population

B) organismal

C) cellular

D) molecular

10) Alternate versions of a specific gene are called \_\_\_\_\_\_\_\_.

A) nucleotides

B) chromosomes

C) alleles

D) traits

E) none of the answers are correct

11) Genetic variation is ultimately based upon which of the following?

A) Morphological differences

B) Small variations in nucleotide sequence of the DNA

C) Carbohydrate content of the cell

D) Translation

12) A species that contains two copies of each chromosome is called \_\_\_\_\_\_\_\_.

A) a genetic mutation

B) a morph

C) haploid

D) diploid

E) alleles

13) A cell that makes up the body structure of an organism and is diploid is \_\_\_\_\_\_\_\_.

A) a gamete

B) a somatic cell

C) an allele

D) rare

E) a sperm cell

14) In many organisms, one set of chromosomes comes from the maternal parent, while the other set comes from the paternal parent. Similar chromosomes in these sets are said to be \_\_\_\_\_\_\_\_.

A) morphs

B) alleles

C) haploid

D) homologs

E) physiological traits

15) In humans, gametes are different than other cells of the body in that they are \_\_\_\_\_\_\_\_.

A) diploid

B) haploid

C) genetic mutations

D) morphs

E) none of the answers are correct

16) Which of the following is correct regarding natural selection?

A) It is based on competition for resources

B) Beneficial traits are passed on to the next generation

C) It enables a species to become better adapted to its environment

D) It may drastically change a species over time

E) All of the answers are correct

17) \_\_\_\_\_\_\_\_ is the use of a gene sequence to synthesize a functional protein.

A) Loss-of-function mutation

B) Gene expression

C) The human genome project

D) Proteomics

E) None of the answers are correct

18) The differences in inherited traits among individuals in a population are called \_\_\_\_\_\_\_\_.

A) species variation

B) genetic mutations

C) genetic variation

D) natural selection

E) none of the answers are correct

19) Three populations of an organism, each with drastically different external markings, but still members of the same species, would be called \_\_\_\_\_\_\_\_.

A) homologs

B) mutants

C) communities

D) alleles

E) morphs

20) The changes in the genetic makeup of a population over time is called \_\_\_\_\_\_\_\_.

A) homologous recombination

B) model organisms studies

C) genetic crosses

D) biological evolution

E) hypothesis testing

21) Change in a population over time is called biological evolution.

22) Gene expression involves the process of transcription and translation.

23) Sexual reproduction decreases the genetic variation of a species.

24) Which of the following studies the effects of loss-of-function mutations?

A) Population genetics

B) Transmission genetics

C) Molecular genetics

25) Which of the following uses a genetic cross to determine patterns of inheritance?

A) Population genetics

B) Transmission genetics

C) Molecular genetics

26) Which of the following studies the relationship between genetic variation and the environment?

A) Population genetics

B) Transmission genetics

C) Molecular genetics

27) Which of the following began with the work of Gregor Mendel in the 19th century?

A) Population genetics

B) Transmission genetics

C) Molecular genetics

28) Which of the following studies how the forces of nature have influenced the spread of traits?

A) Population genetics

B) Transmission genetics

C) Molecular genetics

29) \_\_\_\_\_\_\_\_ influence the physical appearance of an organism.

A) Morphological traits

B) Physiological traits

C) Behavioral traits

30) DNA stores the information needed for the synthesis of cellular \_\_\_\_\_\_\_\_.

A) proteins

B) carbohydrates

C) lipids

31) Both genes and the \_\_\_\_\_\_\_\_ influence the traits of an organism.

A) genome

B) environment

C) population

32) The class of macromolecules that are primarily responsible for catabolic and anabolic activities in a cell are

A) nucleic acids.

B) proteins.

C) lipids.

D) carbohydrates.

33) What is the difference between hypothesis testing and discovery-based research?

A) Hypotheses can be validated or invalidated while discovery-based research relies more on collection and analysis of data without a hypothesis.

B) Discovery-based science can be validated or invalidated while hypothesis based research relies more on collection and analysis of data.

C) There is only one type of experimental approach, both terms describe the same approach.

D) Hypothesis-based research results in believable science while discovery-based research results in unreliable conclusions.

34) A scientist observes two new birds that appear to be morphologically similar. In order to explain these observations, which strategy should the scientist employ as a first step?

A) Propose a hypothesis

B) Relate structure and function

C) Analyze data

D) Use statistics