Concepts of Genetics, 12e, Global Edition **(Klug)**
Chapter 1 Introduction to Genetics

1) In the 1600s, William Harvey studied reproduction and development. What is the term given to the theory that states that an organism develops from the fertilized egg by a succession of developmental events that lead to an adult?
A) preformation
B) sequential pattern formation
C) equational transformation
D) transduction
E) epigenesis
Answer: E
Section: 1.1
Bloom's Taxonomy: Remembering/Understanding

2) What is the term given to the theory that states that the fertilized egg contains a complete miniature adult?
A) preformation
B) transduction
C) transformation
D) conjugation
E) cell theory
Answer: A
Section: 1.1
Bloom's Taxonomy: Remembering/Understanding

3) What is the term given to the theory that put forth the idea that living organisms could arise by incubating nonliving components?
A) spontaneous generation
B) natural selection
C) evolution
D) preformation
E) collective combination
Answer: A
Section: 1.1
Bloom's Taxonomy: Remembering/Understanding

4) What is a homunculus?
A) a large cyst or growth on a plant due to viral infection
B) a sperm or egg containing a miniature adult, perfect in size and proportion
C) the intermediate stage of the DNA after CRISPR-Cas treatment
D) when the mitochondrion grows in size before splitting into two via fission
E) during development sometimes a growing individual's cell can become mutated and one part of the child has different characteristics than the other
Answer: B
Section: 1.1
Bloom's Taxonomy: Remembering/Understanding

5) Who, along with Alfred Wallace, formulated the theory of natural selection?
A) Gregor Mendel
B) William Harvey
C) Louis Pasteur
D) Charles Darwin
E) James Watson
Answer: D
Section: 1.1
Bloom's Taxonomy: Remembering/Understanding

6) Who was the Augustinian monk that conducted a decade of experiments on the garden pea, eventually showing that traits are passed from parents to offspring in predictable ways?
A) Francis Crick
B) Alfred Wallace
C) Hippocrates
D) Aristotle
E) Gregor Mendel
Answer: E
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

7) In many species, there are two representatives of each chromosome. In such species, the characteristic number of chromosomes is called the _____ number. It is usually symbolized as _____.
A) haploid; n
B) haploid; 2n
C) diploid; 2n
D) diploid; n
E) monoploid; n
Answer: C
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

8) Genetics is the study of _____.
A) inheritance and variation
B) mutation and recession
C) transcription and translation
D) diploid and haploid
E) replication and recombination
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

9) Early in the twentieth century, Walter Sutton and Theodor Boveri noted that the behavior of chromosomes during meiosis is identical to the behavior of genes during gamete formation. They proposed that genes are carried on chromosomes, which led to the basis of the _____.
A) Chromosome Theory of Inheritance
B) Law of Segregation
C) Law of Independent Assortment
D) First Law of Thermodynamics
E) Chromosomal Maintenance Theory
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

10) What is a mutation?
A) an inherited change in a DNA sequence
B) the source of all genetic variation
C) a change in DNA that leads to death
D) an inherited change in DNA sequences that is the source of all genetic variation
E) an inherited changed in DNA sequence that is always bad for an organism
Answer: D
Section: 1.2
Bloom's Taxonomy: Applying/Analyzing

11) Which of the following is TRUE about alleles?
A) An allele is a variant form of a gene.
B) Alleles come in two forms, the good form and the bad form.
C) Individuals carry both forms of each allele.
D) The phenotype of the individual will always indicate with certainty the alleles of the individual.
E) An individual will only carry one version of an allele.
Answer: A
Section: 1.2
Bloom's Taxonomy: Applying/Analyzing

12) Until the mid-1940s, many scientists considered proteins to be the likely candidates for the genetic material. Which of the following characteristics led scientist to believe DNA was NOT the genetic material?
A) DNA is more stable than protein.
B) DNA is less abundant than protein.
C) DNA has less variation than protein.
D) Protein can fold into may shapes.
E) DNA is less abundant than protein and DNA has less variation than protein.
Answer: E
Section: 1.2
Bloom's Taxonomy: Applying/Analyzing

13) Name the individual who, while working with the garden pea in the mid-1850s, demonstrated quantitative patterns of heredity and developed a theory involving the behavior of hereditary factors.
A) Walter Sutton
B) Theodor Boveri
C) Barbara McClintock
D) Gregor Mendel
E) George Wallace
Answer: D
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

14) Which of the following is the subdiscipline of biology concerned with the study of heredity and variation at the molecular, cellular, developmental, organismal, and populational levels?
A) genetics
B) cell biology
C) molecular biology
D) cytogenetics
E) biochemistry
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

15) Which of the following is an example of natural selection?
A) a bird's beak is able to effectively crack the seeds it encounters
B) human beings develop freckles from being out in the sun
C) depending on the food a turtle eats, it shell may grow faster or slower
D) sometime during human's life they break a bone and it heals
E) bacteria can be effectively killed by treatment with bleach
Answer: A
Section: 1.1
Bloom's Taxonomy: Evaluating/Creating

16) What term is used to describe the fact that different genes in an organism often provide differences in observable features?
A) phenotype
B) genotype
C) alleles
D) natural selection
E) inheritance
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

17) Which of the following is an example of heredity?
A) Doberman pinschers and boxers have similar body shapes.
B) Both moths and birds have wings and can fly.
C) Dalmation dogs all have spots.
D) Flying squirrels have a different mechanism of flight than mosquitos.
E) Flies and molluscs both have eyes.
Answer: C
Section: 1.2
Bloom's Taxonomy: Evaluating/Creating

18) Which of the following is NOT an example of variation?
A) a child does not have her mother's hair color
B) cats can have long or short fur
C) giraffes have not been seen in an albino form
D) both monocotyledons and dicotyledons perform the dark reaction
E) lobsters can come in many colors including blue, read, and brown
Answer: D
Section: 1.2
Bloom's Taxonomy: Evaluating/Creating

19) What would happen if, during meiosis, the chromosome number was not halved before egg and sperm formation?
A) nothing
B) in each successive generation, the offspring would double their chromosome number
C) n would become halved
D) each offspring would have different phenotypes than their parents
E) the spindle would be compromised
Answer: B
Section: 1.2
Bloom's Taxonomy: Applying/Analyzing

20) Alternative forms of a gene are called _____.
A) alleles
B) mutants
C) phenotypes
D) genotypes
E) meiotic products
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

21) The various characteristics of organisms that result from their genetic makeup are collectively referred to as an organism's _____.
A) genotype
B) alleles
C) phenotype
D) genome
E) proteome
Answer: C
Section: 1.2
Bloom's Taxonomy: Remembering/Understanding

22) Name the substance that serves as the hereditary material in eukaryotes and prokaryotes.
A) RNA or ribonucleic acid
B) DNA or deoxyribonucleic acid
C) protein
D) lipid
E) carbohydrate
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering/Understanding

23) Which of the following contains all the others?
A) double helix
B) nucleotide
C) hydrogen bond
D) DNA strand
E) sugar
Answer: A
Section: 1.3
Bloom's Taxonomy: Applying/Analyzing

24) A fundamental property of DNA's nitrogenous bases that is necessary for the double-stranded nature of its structure is _____.
A) complementarity
B) anti-parallel
C) ring structure
D) sugar phosphate backbone
E) deoxyribose versus ribose
Answer: A
Section: 1.3
Bloom's Taxonomy: Applying/Analyzing