

**TOSS-UP**

1) BIOLOGY *Multiple Choice* Which of the following is the general term used to describe a heritable feature?

- W) trait
- X) character
- Y) genetic cross
- Z) hybridization

ANSWER: X) CHARACTER

**BONUS**

1) BIOLOGY *Short Answer* Mendel primarily used which plant for his tests?

ANSWER: PEA PLANT

**TOSS-UP**

2) BIOLOGY *Multiple Choice* Which of the following generations is described as being the hybrid offspring of the true-breeding parents?

- W)  $P$  generation
- X)  $F_1$  generation
- Y)  $F_2$  generation
- Z) dominant generation

ANSWER: X)  $F_1$  GENERATION

**BONUS**

2) BIOLOGY *Short Answer* In Mendel's research with pea plants, what was the color he found to be recessive?

ANSWER: WHITE

**TOSS-UP**

3) BIOLOGY *Short Answer* All human cells have 46 chromosomes except for which kind of cells?

ANSWER: SEX CELLS (accept GAMETES or REPRODUCTIVE CELLS)

**BONUS**

3) BIOLOGY *Short Answer* The endoplasmic reticulum consists of a network of membranous tubules and sacs known as what?

ANSWER: CISTERNAE

**TOSS-UP**

4) BIOLOGY *Multiple Choice* Which of the following statements regarding Mendel's hypotheses is not a true statement?

- W) For each character, an organism inherits two alleles.
- X) Different alleles account for variations in inherited characters.
- Y) If two alleles differ, then the dominant allele takes up the majority in the organism's appearance, while the recessive allele makes a few noticeable changes
- Z) For each character, the two alleles segregate during gamete production.

ANSWER: Y) IF TWO ALLELES DIFFER, THEN THE DOMINANT ALLELE TAKES UP THE MAJORITY OF THE ORGANISM'S APPEARANCE, WHILE THE RECESSIVE ALLELE MAKES A FEW NOTICEABLE CHANGES

**BONUS**

4) BIOLOGY *Short Answer* The concept of the separation of alleles into separate gametes is the basis of which law?

ANSWER: LAW OF SEGREGATION

**TOSS-UP**

5) BIOLOGY *Multiple Choice* Organisms with two different alleles for a character are said to be what?

- W) homozygous
- X) dihybrid cross
- Y) pleiotropic
- Z) heterozygous

ANSWER: Z) HETEROZYGOUS

**BONUS**

5) BIOLOGY *Short Answer* Complete the following statement. An organism's genetic makeup is to genotype, as an organism's appearance is to what?

ANSWER: PHENOTYPE

**TOSS-UP**

6) BIOLOGY *Short Answer* What is the name of the diagram that is designed to show the genotype of an organism that has a dominant trait?

ANSWER: TESTCROSS

**BONUS**

6) BIOLOGY *Short Answer* The concept of the independent segregation of each pair of alleles during gamete formation is the basis of which law?

ANSWER: LAW OF INDEPENDENT ASSORTMENT

**TOSS-UP**

7) BIOLOGY *Multiple Choice* Consider a situation where the phenotypes of the heterozygote and the dominant homozygote can not be told apart from one another. Which of the following terms best describes this situation?

- W) incomplete dominance
- X) complete dominance
- Y) codominance
- Z) independence

ANSWER: X) COMPLETE DOMINANCE

**BONUS**

7) BIOLOGY *Short Answer* The ability of a gene to affect an organism in multiple ways is known as what?

ANSWER: PLEIOTROPY

**TOSS-UP**

8) BIOLOGY *Multiple Choice* A gene at one locus alters the phenotypic expression of a gene at a second locus. What genetic condition does this statement describe?

- W) neurofibromatosis
- X) haemophilia
- Y) epistasis
- Z) phenylketonuria

ANSWER: Y) EPISTASIS

**BONUS**

8) BIOLOGY *Short Answer* What is the common term for what is commonly referred to as the converse of pleiotropy?

ANSWER: POLYGENIC INHERITANCE

**TOSS-UP**

9) BIOLOGY *Short Answer* Which theory states that Mendelian genes have specific loci on chromosomes and that it is the chromosomes that undergo segregation and independent assortment?

ANSWER: CHROMOSOME THEORY OF INHERITANCE

**BONUS**

9) BIOLOGY *Short Answer* When working with *Drosophila* flies, Morgan discovered that the eye color for these flies was carried exclusively on which chromosome?

ANSWER: X-CHROMOSOME

**TOSS-UP**

10) BIOLOGY *Short Answer* Genes located on a sex chromosome are known as what?

ANSWER: SEX-LINKED GENES

**BONUS**

10) BIOLOGY *Short Answer* Consider a situation in which, out of 1500 total offspring, 500 are recombinants. What would the frequency of recombination be rounded to the nearest percent?

ANSWER: 33%

**TOSS-UP**

11) BIOLOGY *Multiple Choice* Which of the following is not a chromosomal system?

- W) X-Y system
- X) haplo-diploid system
- Y) X-0 system
- Z) X-1 system

ANSWER: Z) X-1 SYSTEM

**BONUS**

11) BIOLOGY *Short Answer* A genetic map based on recombination frequencies is known as what?

ANSWER: LINKAGE MAP

**TOSS-UP**

12) BIOLOGY *Short Answer* In 1990, a British research team found a single gene that is required for the development of testes known as what?

ANSWER: SRY

**BONUS**

12) BIOLOGY *Short Answer* What sex-linked recessive trait is characterized by the absence of a protein required for blood clotting?

ANSWER: HEMOPHILIA

**TOSS-UP**

13) BIOLOGY *Multiple Choice* Which of the following is not an alternation of the chromosome structure?

- W) deletion
- X) duplication
- Y) replacement
- Z) inversion

ANSWER: Y) REPLACEMENT

**BONUS**

13) BIOLOGY *Short Answer* The inactive X chromosome in each cell of a female condenses into a compact object known as what?

ANSWER: BARR BODY

**TOSS-UP**

14) BIOLOGY *Multiple Choice* Which of the following best describes why Down syndrome occurs?

- W) There is one less chromosome 21
- X) There is one less chromosome 20
- Y) There is an extra chromosome 21
- Z) There is an extra chromosome 20

ANSWER: Y) THERE IS AN EXTRA CHROMOSOME 21

**BONUS**

14) BIOLOGY *Multiple Choice* Which of the following describes Klinefelter syndrome?

- W) An extra Y chromosome in a male
- X) An extra Y chromosome in a female
- Y) An extra X chromosome in a male
- Z) An extra X chromosome in a female

ANSWER: Y) AN EXTRA X CHROMOSOME IN A MALE

**TOSS-UP**

15) BIOLOGY *Short Answer* The first evidence that genes are specific molecules was found in 1928 by who?

ANSWER: FREDERICK GRIFFITH

**BONUS**

15) BIOLOGY *Short Answer* What is the name of the phenomenon that is characterized by a change in phenotype due to the assimilation of external genetic material by a cell?

ANSWER: TRANSFORMATION

**TOSS-UP**

16) BIOLOGY *Short Answer* Viruses that infect bacteria are known as what?

ANSWER: BACTERIOPHAGES (accept PHAGES)

**BONUS**

16) BIOLOGY *Short Answer* Where does the replication of a DNA molecule begin?

ANSWER: ORIGIN OF REPLICATION



**TOSS-UP**

17) BIOLOGY *Multiple Choice* What is the name of the enzyme that works at the crotch of the replication fork and untwists the double helix of the DNA?

- W) ligase
- X) primase
- Y) helicase
- Z) polymerase

ANSWER: Y) HELICASE

**BONUS**

17) BIOLOGY *Short Answer* What DNA repair mechanism fixes mistakes when DNA is copied?

ANSWER: MISMATCH REPAIR

**TOSS-UP**

18) BIOLOGY *Short Answer* Sometimes urine appears black due to which chemical?

ANSWER: ALKAPTON

**BONUS**

18) BIOLOGY *Short Answer* What nitrogenous base is found in deoxyribose, but not in ribose?

ANSWER: THYMINE

**TOSS-UP**

19) BIOLOGY *Short Answer* What base is exclusively found in RNA?

ANSWER: URACIL

**BONUS**

19) BIOLOGY *Short Answer* What is the term given to the synthesis of RNA under the direction of DNA?

ANSWER: TRANSCRIPTION

**TOSS-UP**

20) BIOLOGY *Short Answer* What is the term given to the process of the synthesis of a polypeptide?

ANSWER: TRANSLATION

**BONUS**

20) BIOLOGY *Short Answer* The mRNA is usually modified prior to leaving the nucleus. What is this process known as?

ANSWER: RNA PROCESSING

**TOSS-UP**

21) BIOLOGY *Multiple Choice* How many of the 64 codons function as “stop signals”?

- W) 1
- X) 2
- Y) 3
- Z) 4

ANSWER: Y) 3

**BONUS**

21) BIOLOGY *Short Answer* The mRNA base triplets are called what?

ANSWER: CODONS

**TOSS-UP**

22) BIOLOGY *Multiple Choice* Which enzymes pry the two strands of DNA apart and hook together the RNA nucleotides?

- W) helicase
- X) primase
- Y) ligase
- Z) RNA polymerase

ANSWER: Z) RNA POLYMERASE

**BONUS**

22) BIOLOGY *Short Answer* The entire stretch of DNA that is transcribed into a single RNA molecule is known as what?

ANSWER: TRANSCRIPTION UNIT

**TOSS-UP**

23) BIOLOGY *Short Answer* What does the “P” in “P site” stand for?

ANSWER: PEPTIDYL-T-RNA

**BONUS**

23) BIOLOGY *Short Answer* What does “r” stand for in “rRNA”?

ANSWER: RIBOSOMAL

**TOSS-UP**

24) BIOLOGY *Short Answer* : A functional ribosome consists of how many subunits?

ANSWER: 2

**BONUS**

24) BIOLOGY *Short Answer* What three special base triplets act as signals to stop translation?

ANSWER: UAA, UAG AND UGA

**TOSS-UP**

25) BIOLOGY *Multiple Choice* What is the final stage of translation?

- W) elongation
- X) initiation
- Y) translocation
- Z) termination

ANSWER: Z) TERMINATION

**BONUS**

25) BIOLOGY *Short Answer* Clusters of ribosomes trailing along the same mRNA are known as what?

ANSWER: POLYRIBOSOMES

**TOSS-UP**

26) BIOLOGY *Multiple Choice* What process is characterized by the removal of a large portion of the molecule that is initially synthesized during transcription?

ANSWER: RNA SPLICING

**BONUS**

26) BIOLOGY *Short Answer* Intervening sequences are more commonly referred to as what?

ANSWER: INTRONS

**TOSS-UP**

27) BIOLOGY *Multiple Choice* Which of the following describes the molecular basis of sickle-cell disease?

- W) Point mutation occurs and thymine is replaced by cytosine in hemoglobin.
- X) Point mutation occurs and cytosine is replaced by guanine in hemoglobin.
- Y) Point mutation occurs and thymine is replaced by adenine in hemoglobin.
- Z) Point mutation occurs and thymine is replaced by guanine in hemoglobin.

ANSWER: Y) POINT MUTATION OCCURS AND THYMINE IS REPLACED BY ADENINE IN HEMOGLOBIN

**BONUS**

27) BIOLOGY *Multiple Choice* Which of the following best describes the affects lytic and lysogenic reproductive cycles have on the host cell?

- W) The host cell dies in lytic and in lysogenic it does not.
- X) The host cell dies in lysogenic and in lytic it does not.
- Y) The host cell dies in both, lysogenic and lytic reproduction.
- Z) The host cell remains alive in both, lysogenic and lytic reproduction.

ANSWER: W) THE HOST CELL DIES IN LYTIC AND IN LYSOGENIC IT DOES NOT

**TOSS-UP**

28) BIOLOGY *Short Answer* RNA molecules that function as catalysts are commonly referred to as what?

ANSWER: RIBOZYMES

**BONUS**

28) BIOLOGY *Short Answer* Chemical changes in only *one* nucleotide in a single gene are commonly referred to as what?

ANSWER: POINT MUTATIONS

**TOSS-UP**

29) BIOLOGY *Short Answer* The protein shell that encloses the viral genome is called what?

ANSWER: CAPSID

**BONUS**

29) BIOLOGY *Short Answer* Nonviral cancer causing agents are commonly referred to as what?

ANSWER: CARCINOGENS

**TOSS-UP**

30) BIOLOGY *Multiple Choice* Bacteriophages exhibit how many different reproductive cycles?

W) 0

X) 1

Y) 2

Z) 3

ANSWER: Y) 2

**BONUS**

30) BIOLOGY *Short Answer* Viruses that rely on lytic cycles for reproduction are described as being what?

ANSWER: VIRULENT