**TOSS-UP**

1) BIOLOGY *Short Answer* Gram stains differentiate bacterial species based on the chemical and physical properties of what structure?

ANSWER: CELL WALL

**BONUS**

1) BIOLOGY *Multiple Choice* What is the name of the hormone secreted by the pancreas that increases blood glucose levels?

1. Insulin
2. Glucagon
3. Cortisol
4. Epinephrine

ANSWER: X) GLUCAGON

**TOSS-UP**

2) BIOLOGY *Multiple Choice* What protein structure encloses a viruses genetic material?

1. Viral Coat
2. Head
3. Inclusion Body
4. Capsid

ANSWER: Z) CAPSID

**BONUS**

2) BIOLOGY *Short Answer* What is the name given to the reproductive cycle of a phage?

ANSWER: LYSOGENIC CYCLE

**TOSS-UP**

3) BIOLOGY *Short Answer* What is the name of the region of the pancreas that contains its endocrine cells?

ANSWER: ISLETS OF LANGERHANS

**BONUS**

3) BIOLOGY *Multiple Choice* If 4 molecules of glucose undergo glycolysis, how many molecules of pyruvate are produced?

1. 2
2. 4
3. 6
4. 8

ANSWER: Z) 8

**TOSS-UP**

4) BIOLOGY *Multiple Choice* In the citric acid cycle, pyruvate is converted into what compound?

1. Acetlyl Coenzyme A
2. Citrate
3. NADH
4. ATP

ANSWER: W) ACETYL COENZYME A

**BONUS**

4) BIOLOGY *Short Answer* The coenzyme FAD is derived from what B Vitamin?

ANSWER: RIBOFLAVIN

**TOSS-UP**

5) BIOLOGY *Short Answer* What is the name of the enzyme that converts inorganic phosphate and ADP into ATP?

ANSWER: ATP SYNTHASE

**BONUS**

5) BIOLOGY *Short Answer* In lactic acid fermentation, what is pyruvate reduced by to form lactate?

ANSWER: NADH

**TOSS-UP**

6) BIOLOGY *Multiple Choice* The Calvin cycle takes place in what part of the chloroplast?

1. Inner Thylakoid Membrane
2. Outer Thylakoid Membrane
3. Stroma
4. Granum

ANSWER: Y) STROMA

**BONUS**

6) BIOLOGY *Short Answer* What is the name given to the flow of electrons through the photosystems in the thylakoid membrane?

ANSWER: LINEAR ELECTRON FLOW

**TOSS-UP**

7) BIOLOGY *Short Answer* What is the collective name given to all cells in the body excluding reproductive cells?

ANSWER: SOMATIC CELLS

**BONUS**

7) BIOLOGY *Short Answer* What is the number of chromosomes contained in a human gamete?

ANSWER: 23

**TOSS-UP**

8) BIOLOGY *Multiple Choice* The process that occurs after a cell’s nucleus has been divided is:

1. Cytokinesis
2. Prophase
3. Anaphase
4. Metaphase

ANSWER: W) CYTOKINESIS

**BONUS**

8) BIOLOGY *Short Answer* During which phase of interphase are chromosomes duplicated?

ANSWER: S PHASE

**TOSS-UP**

9) BIOLOGY *Short Answer* In what animal cell organelle does the assembly of spindle microtubules start?

ANSWER: CENTROSOME

**BONUS**

9) BIOLOGY *Short Answer* What is the longest stage of mitosis?

ANSWER: METAPHASE

**TOSS-UP**

10) BIOLOGY *Multiple Choice* The nucleoli of a cell disappear in which phase of mitosis?

1. Prophase
2. Metaphase
3. Anaphase
4. Telophase

ANSWER: W) PROPHASE

**BONUS**

10) BIOLOGY *Short Answer* In what phase of mitosis do the nucleoli reappear?

ANSWER: TELOPHASE

**TOSS-UP**

11) BIOLOGY *Short Answer* What term describes the number of chromosomes and what they look like under a light microscope?

ANSWER: KARYOTYPE

**BONUS**

11) BIOLOGY *Short Answer* In a human haploid cell, there are 22 of this type of chromosome.

ANSWER: AUTOSOMES

**TOSS-UP**

12) BIOLOGY *Multiple Choice* What is the name given to the pairing of 2 homologous chromosomes that occurs during meiosis?

1. Replication
2. Cohesion
3. Chiasma
4. Synapsis

ANSWER: Z) SYNAPSIS

**BONUS**

12) BIOLOGY *Short Answer* During what phase of meiosis dues synapsis occur?

ANSWER: PROPHASE I

**TOSS-UP**

13) BIOLOGY *Short Answer* They hybrid offspring that are the outcome of mating between two true breeds are referred to as what generation?

ANSWER: F1 GENERATION

**BONUS**

13) BIOLOGY *Short Answer* A red flower mated with a white flower resulting in pink offspring is an example of what type of genetic dominance?

ANSWER: INCOMPLETE DOMINANCE

**TOSS-UP**

14) BIOLOGY *Multiple Choice* What is the name of the property stating that genes have multiple phenotypic effects?

1. Epistasis
2. Polygenic inheritance
3. Pleiotropy
4. Codominance

ANSWER: Y) PLEIOTROPY

**BONUS**

14) BIOLOGY *Short Answer* What is the name given to the error in which one gamete receives two sets of the same chromosome?

ANSWER: NONDISJUNCTION

**TOSS-UP**

15) BIOLOGY *Short Answer* What is the change in chromosomal structure that occurs when a fragment of a chromosome is lost?

ANSWER: DELETION

**BONUS**

15) BIOLOGY *Short Answer* If the 5’ (“5 Prime”) end of a DNA strand has an Adenine, then the 3’ (“3 Prime”) end of the complementary strand will have what nitrogenous base?

ANSWER: THYMINE

**TOSS-UP**

16) BIOLOGY *Multiple Choice* Purines consist of a 6 member carbon nitrogen ring fused with a:

1. 4 member carbon nitrogen ring
2. 5 member carbon nitrogen ring
3. 6 member carbon nitrogen ring
4. Purine

ANSWER: X) 5 MEMBER CARBON NITROGEN RING

**BONUS**

16) BIOLOGY *Short Answer* What is the name of the enzymes that untwist the double helix at the replication forks?

ANSWER: HELICASES

**TOSS-UP**

17) BIOLOGY *Short Answer* Which enzyme removes RNA primer nucleotides from the 5’ (“5 Prime”) end and replaces them with DNA nucleotides?

ANSWER: DNA POLYMERASE I

**BONUS**

17) BIOLOGY *Short Answer* Which enzyme joins the sugar phosphate backbones of all the Okazaki fragments into a continuous DNA strand?

ANSWER: DNA LIGASE

**TOSS-UP**

18) BIOLOGY *Multiple Choice* How many primers are needed in order for DNA polymerase III to synthesize the leading strand?

1. None
2. One
3. Two
4. Three

ANSWER: X) ONE

**BONUS**

18) BIOLOGY *Short Answer* What are the proteins that are responsible for the packing of DNA into chromatin?

ANSWER: HISTONES

**TOSS-UP**

19) BIOLOGY *Short Answer* What is the name given to mRNA base triplets?

ANSWER: CODONS

**BONUS**

19) BIOLOGY *Short Answer* What is the region of DNA in a gene that is not translated into protein?

ANSWER: INTRON

**TOSS-UP**

20) BIOLOGY *Multiple Choice* If Transcription is to RNA, then Translation is to:

1. Polypeptides
2. Ribosomes
3. DNA
4. Amino Acids

ANSWER: W) POLYPEPTIDES

**BONUS**

20) BIOLOGY *Short Answer* What is the name given to the ribosome binding site in which the tRNA carrying the growing polypeptide chain is held?

ANSWER: P SITE

**TOSS-UP**

21) BIOLOGY *Short Answer* Chemical changes in a single base pair of a gene are known as this type of mutation.

ANSWER: POINT MUTATION

**BONUS**

21) BIOLOGY *Short Answer* What is the name given to the inheritance of traits transmitted by mechanisms not directly involving the nucleotide sequence?

ANSWER: EPIGENETIC INHERITANCE

**TOSS-UP**

22) BIOLOGY *Multiple Choice* Glucose and fructose are what type of isomers?

1. Stereoisomers
2. Optical Isomers
3. Enantiomers
4. Structural Isomers

ANSWER: Z) STRUCTURAL ISOMERS

**BONUS**

22) BIOLOGY *Short Answer* Ester linkages occur between what 2 functional groups?

ANSWER: CARBOXYL AND HYDROXYL

**TOSS-UP**

23) BIOLOGY *Short Answer* Which amino acid is both nonpolar and contains sulfur?

ANSWER: METHIONINE

**BONUS**

23) BIOLOGY *Short Answer* What is the name of the bond between a phosphate group and the sugars of 2 nucleotides?

ANSWER: PHOSPHODIESTER LINKAGE

**TOSS-UP**

24) BIOLOGY *Multiple Choice* Which of the following organelles is found in a plant cell, but not an animal cell?

1. Lysosomes
2. Mitochondria
3. Plasmodesmata
4. Peroxisomes

ANSWER: Y) PLASMODESMATA

**BONUS**

24) BIOLOGY *Short Answer* What is the organelle used by animal cells to hydrolyze macromolecules?

ANSWER: LYSOSOMES

**TOSS-UP**

25) BIOLOGY *Multiple Choice* What are the branched projections of a neuron that conduct electrochemical stimulation from other neurons?

1. Dendrites
2. Glial Cells
3. Ganglion
4. Soma

ANSWER: W) DENDRITES

**BONUS**

25) BIOLOGY *Short Answer* What is the name of the bulbous end of a neuron that contains the cell nucleus?

ANSWER: SOMA